THE IRON AGE

New York, Thursday, June 21, 1906.

The Gleason Bevel Gear Generator.

Among machine tools there is perhaps no one class more interesting than that intended for the cutting of gears. A striking thing about these machines is their diversity of character, even among those designed for cutting the same kind of gears, and nearly all of them embody ingenious movements that it is profitable to study. This applies principally to machines that are strictly gear cutters. Many varieties of gears are now produced on milling machines by the use of formed cutters, but the work they execute only approximates that which is theoretically perfect. Machines that are solely designed for gear cutting, many as they are, have been the development of but a comparatively few inventors and practically without exception these men have devoted long years of study to the one subject. Those who have followed the progress of the art are familiar with the name of one of these, James Gleason of the Gleason Works, Rochester, N. Y., the designer of the machine illustrated, which is one intended solely for the cutting of bevel gears.

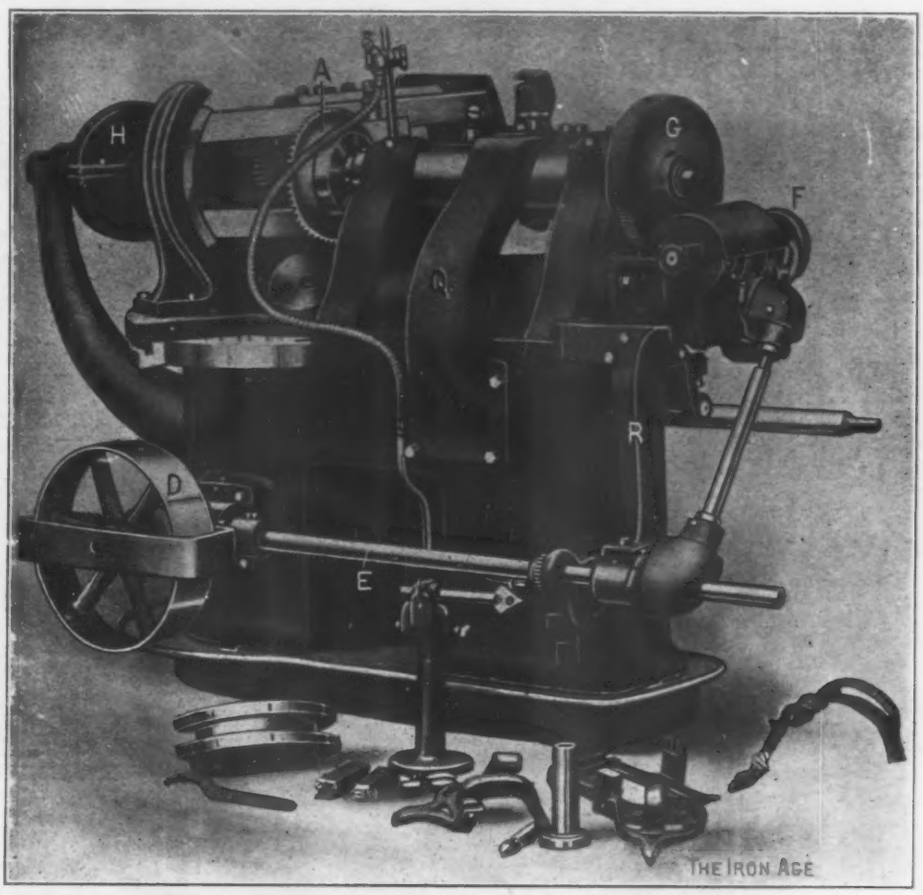


Fig. 1.—The New Bevel Gear Generator Built by the Gleason Works, Rochester, N. Y.

A special importance attaches to this machine inasmuch as it is the successful achievement of an ideal sought by all; that is, the generating of the gear rather than its cutting by formed cutters or form guides. Bevel gears are difficult to produce by this method, inasmuch as the teeth are not of uniform thickness and depth. For cutting spur gears there are already machines which perform theoretically perfect work, and the hobbing method of making worm wheels is also ideal. In the new Gleason gear generator the tools used have straight cutting edges and are reciprocated as is the tool of a shaper, and while they are in action the work and tools are rolled, constantly changing the point of contact, maintaining the correct relation so that the proper form of tooth curve results.

The views given in the illustrations show every part from at least two points of view, and by comparing them the form and purpose of the several parts may be easily comprehended. Fig. 1 shows the complete machine from the rear or driving side, with some of the attachments and gauges which are included in the complete equipment. Moving around the machine to the right, Fig. 2 shows a view of the working side, and about the position occupied by the operator. Still moving to the right, Fig. 3 shows an adjacent quarter, and Fig. 4 the other quarter view of the rear side. The latter view indicates more clearly than any other the relation of the tools to the work. To avoid confusion like reference letters refer to the same parts on all views.

Before describing the machine in detail it would be in logical order to first explain the object sought by the combination of movements; that is, what takes place in the region of the work, inasmuch as the movements themselves are somewhat complicated, and it is believed they will be better understood by such a procedure. While the machine is capable of making a finished gear from a smooth blank it is better practice, for the sake of more rapid and accurate work and to decrease the frequency of regrinding the tools, to take a rough cut on the blank in another machine, removing most of the surplus metal between the teeth. The work A is then mounted on the arbor, which is a combination of two spindles one within

the other. The inner and outer spindle revolve together, except during the act of indexing. During the cutting of a single tooth the two together are partly rotated by the the line of travel of the tools is continually changing with the rise and fall of the arm B, the correct relation is maintained between the work and the tools, so that the

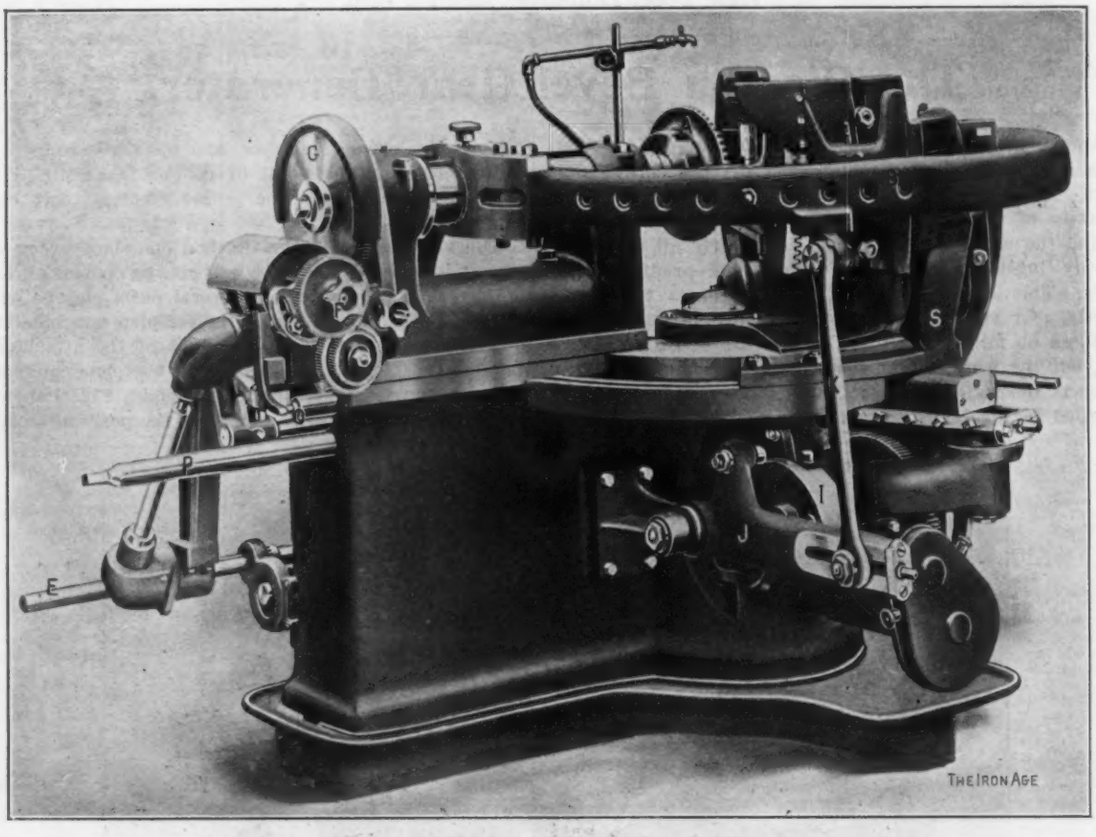


Fig. 2.—The Gleason Bevel Gear Generator as Seen from the Operating Side.

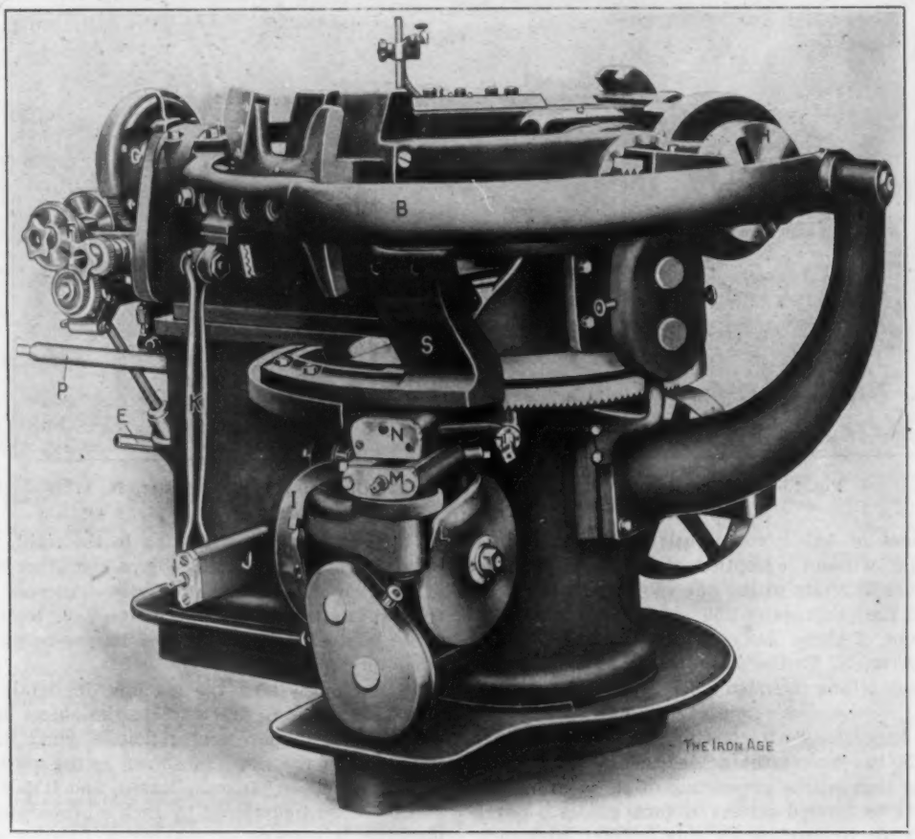


Fig. 3.—Another View of the Operating Side of the Gleason Bevel Gear Generator.

curved arm B. This same arm supports the guides for the tools at their outer ends, and the rocking of the tools is about a center that is coincident with the axis of the gear blank produced. It will be seen then that although direction of the cut is always radial and correctly registered.

The two tools shown at C reciprocate in opposite directions with respect to each other and sufficiently rapidly

so that a comparatively small amount of metal is removed at each cut, and the resulting involute curve even though a succession of tangents is practically a smooth curve. During the indexing the tools are withdrawn, and immediately thereafter begin their work on the pitch line of the teeth. At this time the arm B is at the midpoint of its stroke. It first descends and simultaneously one of the tools cuts the flank of the tooth while the other cuts the face, this continuing while the arm B goes to its lower limit of movement and back to the center. As the arm continues past the center on its upward movement the first tool cuts the face of the tooth and the other the flank. The cutting action ceases when the arm returns to its mid position, where it pauses while the tools are withdrawn from the work and the work is indexed into position for the cutting of the next tooth.

All the movements are obtained from a shaft carrying the driving pulley D at the rear of the machine. This shaft is connected by bevel gears with the shaft E, which drives the indexing mechanism, and in the center of the machine bevel gears connect with a vertical shaft, which drives the mechanism for reciprocating the tools, and the main driving shaft continuing through the machine operates the cams and associated mechanism for oscillating the curved arm B, withdrawing the tools between indexing and actuating the knock-off, which sets the indexing mechanism in action.

The indexing mechanism is driven from the shaft E by a bevel gear splined on the shaft and held in proper relation to the mechanism it drives when the work head is adjusted, by the arm R attached to the head. The driven bevel gear is on a telescopic shaft with a second series of bevel gears which drive a worm engaging a worm wheel on the shaft with a differential movement. The mechanism up to this point runs continuously and between the indexing operations one member of the differential is stationary while the other continues to revolve. At the instant that the knock-off acts the formerly stationary member of the differential rotates, the other remaining for the time being stationary, and through the spur gears, F, and a worm connected with the last in the train the worm wheel G, mounted on the inner spindle, is rotated an amount corresponding to the pitch of the teeth of the work. The worm wheel G, the spur gears F and the differential oscillate as a unit about the spindle center with each movement of the arm B, hence the need of a telescopic shaft between these parts and the shaft E. The gears F are interchangeable to produce different amounts of indexing for gears of different diameters and numbers of teeth. The last gear in the train F is connected by a clutch with the worm shaft driving the worm wheel on the inner work spindle, so that the work may be rotated independently of the indexing mechanism by a crank placed on the squared end of the worm shaft.

The mechanism for reciprocating the tools, which is driven from the short vertical shaft in the center of the machine, includes a short horizontal shaft bevel gear driven from the vertical shaft and train of spur gears, transmitting the motion to a crank which through a rack oscillates a pinion on the same shaft with another pinion between the cutter tool slides. These cutter slides have racks on their facing sides which mesh with the pinion between them, so that the pinion rotating in one direction or the other reciprocates them in opposite directions. For convenience this pinion will be designated as the driving pinion and the one on the shaft as the driven pinion. The reversing motion which the driven pinion receives is obtained from the rack pivotally connected wth the crank H. The rack has a combined oscillating and reciprocating motion and is supported in a rocking guide pivoted on the same center as the pinion, so that the rack and pinion are always engaged. The crank H has a variable throw regulated by a screw, so that it may be varied according to the length of stroke required of the cutters, which in turn depends upon the width of the gear face being cut. The guides for the cutter slides are adjustable in their angular relation to one another to allow for cutting gears of different diameters or different pitch. The center about which the guides are adjusted is coincident with the center of the pinion driving the racks on the cutter slides, so that the drive is not affected by changing the angular position of the guides. All parts of the machine associated with the cutters, including their guides and driving mechanism, are mounted on a base swiveled at a center coincident with the center of the vertical driving shaft, so that this drive is not affected by revolving the tool head.

The main driving shaft, which extends through the

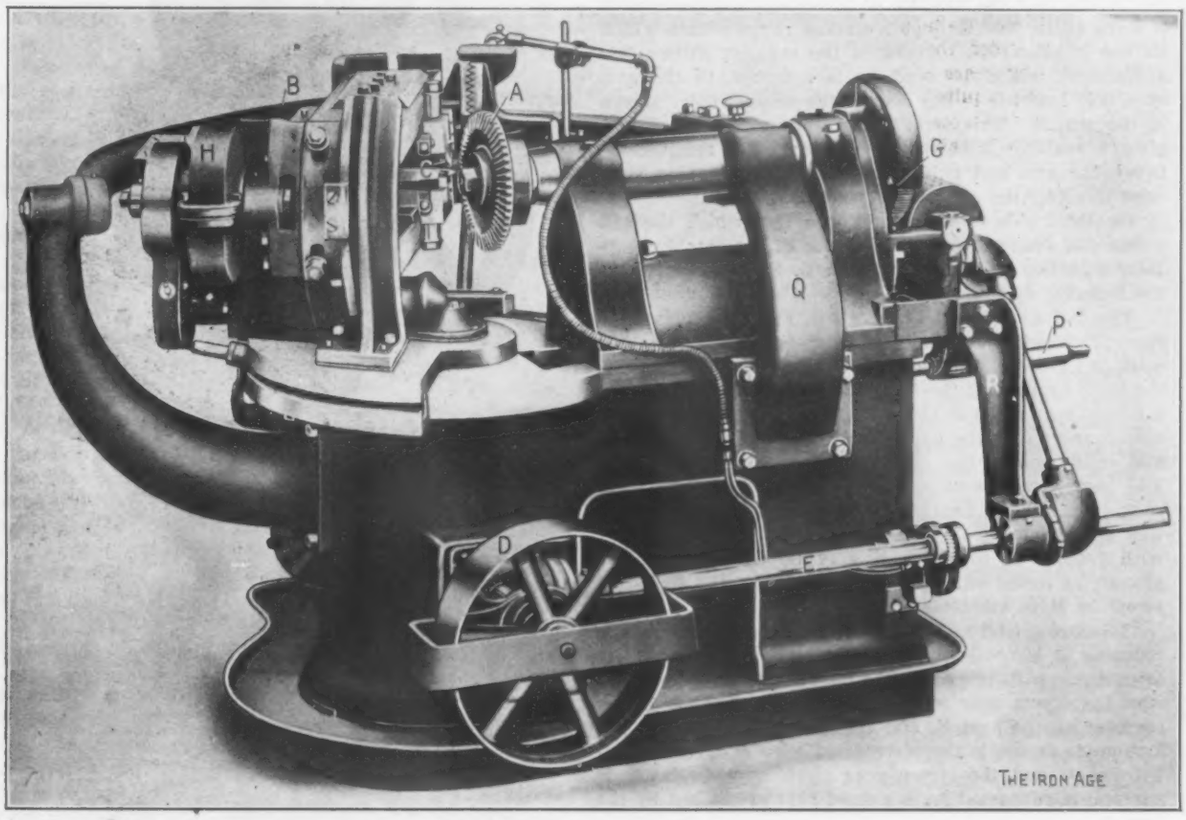


Fig. 4.—The Driving Side of the Gleason Bevel Gear Generator.

base of the machine, carries a worm driving the cam shaft shown at the front of the base in Figs. 2 and 3. The disk cam I through the follower on the lever J and the link K gives the oscillating movement to the curved arm B. This arm is pivotally supported at both extremities, the arbor end being feathered to the outer spindle of the work supporting head. This end of the arm B is held by the arm Q, Fig. 4, against endwise displacement when the tool spindle is adjusted axially by moving the work head.

It is to be observed that the attachment between the ends of the cutter slide guides and the curved arm B is not a direct one. It obviously cannot be, since the axes of the guide frame and arm B are not coincident. Instead the connection is made through a crown gear attached to the outer end of the guide frame and an interchangeable segment gear connected to the arm. These segments are made with various radii, according to the point at which they are attached to the arms, to allow for cutting gears with different pitch cone angles. To reduce the required number of these segment gears each is made adjustable through a limited range within which its use is allowable. A slot in the segment allows this adjustment when the segment is attached to the arm by a bolt inserted in any one of the several holes shown in the arm B. This form of connecting, it will be seen, gives a positive movement with the proper relation between the arm and guide frame and without play sufficient to affect the accuracy of the work.

On the inside of the cam I is a trip which through a link and connection in the interior of the machine connects with the automatic throw-off O, Fig. 2, for starting the indexing mechanism.

The cylindrical cam L, shown in Fig. 3, accomplishes the withdrawing of the tools from the work while the work is indexed. The action consists simply of rotating the table supporting the tool head, and is effected through a follower attached to the lever M. This lever is adjustably connected to the part N above it, to vary the throw and consequently the extent of the rotary movement. The part N carries an arm with a spur gear engaging a rack on the lower face of the tool head table. Through this gear a change in the angular position of the table with respect to the part N may be effected, but the amount of throw remains the same unless the adjusting screw in M is manipulated.

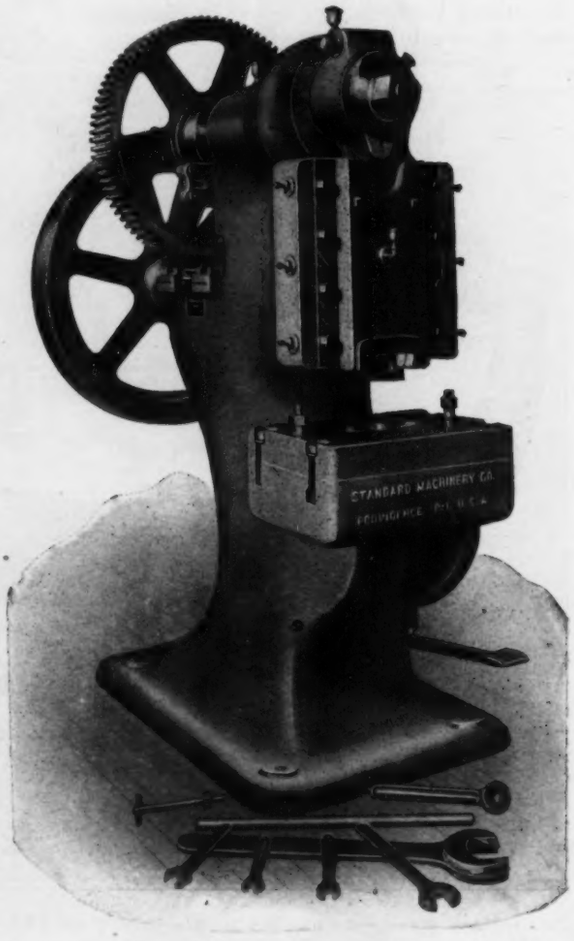
To allow withdrawing the tools from the work during indexing it is obviously necessary that the guide frame be movable with respect to the crown gear part, as otherwise the crown gear would become disengaged from the segment on the arm B, and the guide frame would fall. The guide frame is therefore fitted with a dovetail joint between it and the crown gear piece, and the latter is adjustably supported from a fixed part of the bed by the arm R.

With the machine are furnished printed instructions for the operator, with tables by the use of which he may determine at once without figuring, the proper gears for the indexing, the proper segment gear to use on the arm, the correct angle to set the arm, &c. In setting the machine for a job the operator puts the gear blank on the arbor, and by adjusting the work head longitudinally through the screw P, sets the blank with the assistance of a gauge, so that the apex of the pitch cone is directly over the center of the tool head table. The correct gears for the indexing to give the required pitch are mounted on the indexing head. The proper segment gear being loosely attached to the arm, the guide frame is adjusted to the required angle and the segment gear clamped in position. The length of throw of the lever J is adjusted to give sufficient oscillation to the arm B to cut a complete tooth. The guides of the tool slides are then adjusted to give the proper angle between the lines of travel of the tools, this being accomplished by manipulating a right and left hand screw between the ends of the guides. When the guides are correctly positioned they are clamped by bolts. The tools are brought up to the work by manipulating the pinion connected to the arm on the part N, which rotates the table, and the length of throw of M is made just sufficient to bring the tools out of the work and allow the indexing. The throw of the crank gear H is then adjusted to give the cutters long enough travel. The necessary gauges are furnished for setting the tools in the tool slide and for positioning the work with respect to the tools, and graduations are provided on the machine itself wherever they will assist in setting the parts.

When cutting steel gears oil is used, and is obtained through an attachment and flexible hose leading from a rotary oil pump driven from the shaft E on the base of the machine.

A New Standard Power Press.

The geared single acting power press shown in the illustration is one of a redesigned line built by the Standard Machinery Company, Providence, R. I. The



A New Geared Single Acting Power Press Built by the Standard Machinery Company, Providence, R. I.

tool is a powerful one. The slide is made with removable gibs, the connection is very heavy, and a positive clutch has been substituted for the friction clutch formerly used on this general type of machine. The machine is built in five sizes, one heavier and the other three smaller than the one illustrated, which is known as the No. 5. All are furnished either plain or geared, as desired. In the machine shown the standard opening of bed is 9 x 10½ inches; distance back from center of slide, 10¼ inches; distance of bed to slide with stroke and adjustment up, 9 inches; standard stroke of slide, 1½ inches; adjustment of slide, 1 inch. When not geared the weight of the press is 7000 pounds, the speed per minute 75 to 95 revolutions. The weight of the geared press is 8000 pounds, the speed per minute of balance wheel 150 revolutions, and the ratio of gearing 5 to 1.

After an idleness of 15 months the sheet and tin plate mills of the Whitaker-Glessner Company, Wheeling, W. Va., have been started up.

The Production of Abrasive Materials.

WASHINGTON, D. C., June 19, 1906.—The annual report of the United States Geological Survey on the production of abrasive materials in 1905, which has been compiled by Joseph H. Pratt, shows an output valued at $1,427,780, which is an increase of $20,679 over the production of 1904. To the total value of natural abrasives thus given should be added that of artificial abrasives, which in 1905 was estimated at $701,400, as compared with $830,926 in 1904, a decrease of $129,526.

Products Cut Into Forms Desired.

The production of buhrstones and millstones in the United States during 1905 was valued at $37,974, a very slight increase over $37,338, the value in 1904. The production of 1905 is only about one-third of what it was in 1887, at the time of the introduction of the roller mill process for grinding wheat flour. There were only four States reporting a production of buhrstones or millstones in 1905, with a total of 25 producers, as follows: New York, 14; Pennsylvania, 5; Virginia, 4; North Carolina, 2.

The production of grindstones and pulpstones during 1905 was obtained from Ohio, Michigan, West Virginia, Montana, Missouri and Wyoming, given in the order of the value of their output. By far the largest quantity came from Ohio. The total value of all kinds of grindstones and pulpstones produced in 1905 was $777,606, which was $103,921 less than the value of the 1904 production.

There were no new quarries that produced any oilstones or scythestones during 1905, and the total production was from the old localities in Arkansas, Indiana, Michigan, New Hampshire, Ohio and Vermont. In New Hampshire and Vermont the material used in manufacturing scythestones is a quartz schist, and in all the other States it is a sandstone which varies widely in texture; the novaculite variety, which is obtained from Arkansas, is the most valuable of any of the abrasives, and the demand for it is in some respects greater than the supply. Under this head are included all kinds of oilstones, whetstones, water hones, knife sharpeners and all varieties of razor hones, dental points, &c. There was a decided increase in the production of oilstones and scythestones in the United States in 1905, as compared with the production in 1904, but it was far below the production of 1903. The value of the 1905 production was $244,346, which is an increase of $55,361, as compared with $188,985, the value of the production in 1904. As compared, however, with the 1903 production, the value of which was $366,857, it is a decrease of $122,511. In nearly every instance the producers of the materials used in the manufacture of oilstones and scythestones are also the manufacturers of the finished or marketable product, and in nearly every instance also, with the exception of the novaculite, the raw material would have no value whatever for shipment in the crude condition. It is the value of the finished stones, and not that of the raw material, that is given in these statistics. The States producing oilstones and scythestones, in the order of the value of their production, are as follows: Arkansas, New Hampshire, Ohio, Vermont, Indiana and Michigan. This is the same order as for 1904, with the exception that Kentucky reported no production in 1905 and that there was a small production from Michigan, which did not report any output for 1904.

Production of Mechanically Separated Abrasives.

Only a very small part of the crystalline quartz or feldspar mined in the United States is used for abrasive purposes and included in this report. The crystalline quartz which is included in this report is used principally as a wood filler and in the manufacture of sandpaper and of scouring soaps, and is obtained principally from New York, Connecticut, Pennsylvania and Wisconsin. The feldspar is used in making sandpaper and cloth and some special abrasive products for use in woodworking factories, and is obtained from Minnesota. The production of crystalline quartz and feldspar in the United States during 1905 amounted to 19,039 short tons, valued at $88,118. There was a considerable falling off in the production of quartz in 1905, as compared with that of 1904, but a large increase in the amount of feldspar.

During 1905 the production of abrasive garnet in the United States amounted to 5050 short tons, valued at $148,095, as compared with 3854 short tons in 1904, valued at $117,581, an increase of 1196 tons in quantity and of $30,514 in value. This is the largest quantity of garnet produced in any year since these statistics have been collected, but the value is exceeded by that of 1901, when 4444 short tons were valued at $158,100.

Never in the history of the abrasive industry has the time been more opportune for the development of corundum properties than at present, as there is a scarcity of emery ore. Many of the mills in the United States are finding it difficult to keep supplied with emery. The Greek and Turkish deposits are not furnishing the grade of emery that is desired, nor the quantity, and this has also been true during the past year of the emery mines in this country. The increasing demand for this type of abrasive should give an impetus to the development of the domestic corundum deposits. The Canadian corundum deposits supply to some extent the demand for corundum, but there is still a large enough market to warrant the working of deposits in this country. During 1905 the production of corundum and emery in the United States amounted to 2126 tons, valued at $61,464, as compared with 1916 tons, valued at $56,985, in 1904, an increase of 210 tons in quantity and of $4479 in value. The corundum mined was from North Carolina and Montana and the emery from New York and Massachusetts. The importation of corundum and emery into the United States is still largely in excess of the home production, and in 1905 these imports were valued at $347,425, against $260,424, the value in 1904.

Artificial Abrasives.

The production of carborundum in 1905 amounted to 5,596,000 pounds, as compared with 7,060,380 pounds in 1904 and 4,759,890 pounds in 1903. Besides abrasive purposes another use has recently been advocated for carborundum—namely, as a refractory material for furnace linings. As the most refractory variety of carborundum is infusible at 7000 degrees F. and is unaffected by oxygen, ozone or sulphur at 3000 degrees F. its use as a refractory material should meet with success, and should furnish a market for a considerable quantity of carborundum.

The production of crushed steel in 1905 amounted to 612,000 pounds, valued at $56,840, a decrease of 178,000 pounds in quantity, but an increase of $1540 in value, as compared with 790,000 pounds, valued at $55,300, in 1904. The prices of the different grades of crushed steel vary from 5½ to 11 cents per pound, and the production of 1905 contained more of the higher grade varieties, hence the increase in the value with a decrease in quantity.

The production of alundum by the Norton Emery Wheel Company amounted in 1905 to 3,612,000 pounds, valued at $252,840, an average of 7 cents per pound, as compared with 4,020,000 pounds manufactured in 1904. The most of this material is utilized by the company in the manufacture of its corundum wheels. W. L. C.

A very simple muffler for a gas engine has been built in England. The exhaust pipe is split for a distance of about 7 feet, and the split end opened by bending the halves apart until the opening of the slot about equals the diameter of the pipe. The puff of the exhaust then spreads out like a fan, and the discharge into the air takes place much more gradually than would be the case from the plain pipe. The result is said to be effective in reducing the sharp sound of the exhaust, the effect being somewhat dependent upon the flare given the pipe. The length of the pipe is another item to be considered, a greater length being of course required for a large engine than for a smaller one.

Sheet metal covered windows are finding favor with insurance underwriters, as statistics show that 31 per cent. of the 80,000 buildings consumed by fire in 1905 were ignited by burning buildings adjoining.

The Forest of Dean Iron Mine.

The Reopening of a Historic Property in Orange County, N. Y.

The work of unwatering the old Forest of Dean iron mine in Orange County, N. Y., 5 miles west of the Hudson River station of Fort Montgomery, which has been in progress for the past few months, is now nearly completed. Timeliness is thus given to some account of this historic property as well as to a description of the new equipment and the work of reopening the mine by the Hudson Iron Company, 100 Broadway, New York.

The old Forest of Dean mine is reported to have been discovered in 1756. The ore, a magnetite, was then reduced in a charcoal furnace located only a few hundred feet from the present entrance to the mine. Of this old furnace there are still evidences in small piles of slag and some iron. In James M. Swank's "Iron in All Ages" it is stated that "in 1756 there was a Forest of Dean furnace five miles west of Fort Montgomery, which was supplied with ore from the Forest of Dean mine, near which it stood. The furnace was abandoned 21 years later." Benjamin J. Lossing in his "Field Book of the Revolution" refers to an enormous iron chain which was stretched across the Hudson River at West Point by General Washington's direction for the purpose of preventing the passage of British vessels. This chain was from ore of equal parts from the Sterling and Long mines in Orange County. Its weight was 180 tons. The same historian says that two other chains were stretched across the Hudson in the War of the Revolution. One of these latter was at Fort Montgomery. The iron came from the Forest of Dean charcoal furnace and was smelted from ore from the Forest of Dean mine. No other iron mine in the country at which operations are now in progress has as long a history as the Forest of Dean.

Fig. 1.—A View in the Old Forest of Dean Mine, 250 Feet from the Mouth of the Incline.—At this point the vein is 100 feet wide and 80 feet from the floor to the roof. On the left is a pillar of ore.

Mining Operations in the Sixties.

The first operations of any extent were carried on by Mr. Alger and others, who formed in 1862 the Hudson Iron Company. This company, which has no connection with the present company of the same name, worked the mine for only a few years, the property being sold to the Forest of Dean Iron Ore Company in 1865. This company still has a nominal existence, as a connected interest of the Poughkeepsie Iron Company, Poughkeepsie, N. Y. Prior to 1862 the mine had been operated in a small way for some years by water power, which was developed by the building of two small dams on Popolo Creek. When the Forest of Dean Company took over the property it proceeded at once to enlarge the water power by increasing the hights of the dams, forming two reservoirs, one of 160 acres and the other of 37 acres, with a mean depth of 10 feet. Two 40 foot overshot wheels were installed, one for hoisting and the other to operate a compressor and Cornish pump. The company also built a tramroad 3⅛ miles in length. The mine was entered by a slope, which had an inclination of 32 degrees for some distance from the mouth and then for a considerable distance inclined at an angle of 18 degrees. In the deeper portions of the mine there are variations between 25 and 38 degrees. The ore upon being hoisted to the surface was dumped on platforms, where it was sorted by hand, the ore being shoveled into cars and hauled by mules to the end of the tramroad, where it was again dumped on a platform. It was then shoveled into wagons, hauled a mile and a half to the dock at Fort Montgomery and thence loaded into schooners and barges and taken up the river to the furnace at Poughkeepsie. Since the mine was opened it is estimated that over 1,000,000 tons of magnetic ore has been taken from it, and the work underground has been carried to a depth of 1700 feet on the slope, where the bottom of the mine was 700 feet below the surface. Mining was discontinued in 1894, the company having reached the limit of its property and being unable to acquire rights on the property adjoining. The ore shipped by the Forest of Dean Company averaged about 61 per cent. in iron, 0.7 per cent. in phosphorus and 5 per cent. in silica, with a trace of sulphur.

The Original and the Present Power Plants.

The Hudson Iron Company entered upon the property for its reopening on October 15, 1905. In addition to the

tedious work of unwatering the mine the company had before it the wrecking and removal of the old power plant, including the two overshot wheels, the old hoist and compressor and the long connecting rod and gear of the Cornish lift pump. A view of one of the old wheels and of the air compressor, as well as of the rod leading to the Cornish pump, is shown in Fig. 3. The work of re-equipping the mine would have been simpler in some respects had it been possible to start with a clean slate. But the Cornish pump was to be utilized and the economy of the existing water power made it desirable to employ that to the fullest extent. Two 72-inch double nozzle Pelton water wheels were installed, generating 225 horse-power. Water is delivered to the wheels through a 3-foot steel pipe 1000 feet long leading from the reservoir. On the main shaft of the water wheels are two 13-foot sheaves and one 24-inch band wheel, the latter being used to operate a two-stage Rand compressor with a capacity of 750 feet of free air per minute. The two sheaves operate

Fig. 2.—A View Taken at a Point 1200 Feet from the Mouth of the Forest of Dean Shaft While Unwatering Was in Progress. —The rafts were used in the work of "roofing," the dislodging of pieces of ore liable to fall after the unwatering.

respectively a 12-inch Cornish pump and a double drum hoist. The Cornish pump sheave and the pump gear are shown in Fig. 4. To secure the requisite motion of the disk to which the beam is connected it was necessary to gear down in the ratio of 100 to 6. The Cornish pump has a 12-inch water column and a 7-foot stroke. It had been in use for years in the operation of the mine by the Forest of Dean Iron Ore Company. Its capacity is 175,000 gallons in 24 hours, which will be ample to keep the mine free from water after the unwatering is completed. The Hudson Iron Company has extended the old tram road mentioned above to a point 4⅛ miles from the mine. The track has been laid with 40-pound steel rails, and a saddle tank locomotive and 8-ton steel cars have been provided for hauling the ore. On being hoisted from the mine the ore passes over a grizzly, the fines dropping into a bin of 400 tons capacity and the coarse ore going to a crusher. From the bin the ore is drawn into cars and hauled to the terminus of the surface road.

An Aerial Cableway for Conveying Ore.

Owing in part to the surface of the country being broken into hills and ravines and partly to difficulties in connection with obtaining right of way, the railroad could not be carried to the Hudson River. The last 6300 feet of the haul to the dock is accomplished by means of an aerial tramway. At the termination of the surface road the cars dump into a bin of 500 tons capacity. From this the ore is discharged into a hopper, which delivers it into the buckets as they pass round the loading terminal of the cableway. This terminal is of the construction illustrated in Fig. 5. The wire rope conveyor was built by A. Leschen & Sons Rope Company, St. Louis, and is of the double rope type. The cable is carried on 23 towers, and in the distance of 6300 feet the ore travels down grade about 390 feet. The capacity of the tramway is 23 tons per hour. The essential feature of the Leschen automatic system is that the buckets are permanently attached to the traction ropes and are loaded by a traveling automatic loader or hopper. This hopper, as shown in Fig. 5, after having been filled from the chute travels alongside the bucket as the latter passes over the rail at the terminal station. After having emptied its contents into the bucket the hopper is returned to the original point under the chute by the movement of a lever. The buckets are so hung in the pendants as to upset easily when tripped, though when in transit they are securely locked by means of a catch to prevent them discharging their contents. At the unloading station the buckets are discharged by being automatically tripped, and by means of a righting device are returned to their normal position ready for loading. A single operator is required, and he is located at the bin where the ore is dropped into the automatic loader. At the dock on the Hudson River a bin of 1000 tons capacity is being erected. From this the ore can be discharged into railroad cars on a siding of the West Shore Railroad, or it may be loaded into boats after being dropped through a chute into a car traveling back and forth on an incline and connected by cable to a drum driven by a small engine. The 1000-ton bin, according to the original plan, was to be located at the water's edge, discharging on one side into cars and on the other side into barges. Owing to the fact that the rock underlying the surface clay pitched at a sharp angle toward the river a suitable foundation could not be secured, and

the bin was therefore built about 100 feet back from the water.

The Hudson Iron Company.

On its organization in June, 1904, the Hudson Iron Company purchased the Secaucus Furnace property from the Hackensack Meadows Company. The property consisted of 550 acres of land and the blast furnace and its equipment. The authorized capital of the company, which is a New Jersey corporation, is $1,500,000, of which only $1,000,000 is outstanding. The mining property in Orange County, back of Fort Montgomery, N. Y., was acquired in the summer of 1905. From the Forest of Dean Iron Ore Company the Hudson Iron Company secured a long lease on the mining lot of the former, consisting of 50 acres. This was done entirely for the purpose of securing access to the ore on adjoining property through the original shaft of the Forest of Dean Company. The new mine will be known as the Hudson. The Hudson Iron Company also bought 160 acres of land adjacent to the Forest of Dean property, this land carrying the continuation of the vein on which work was stopped in 1894. The vein outcrops for nearly half a mile on the land purchased, and the amount of ore on the property is reckoned at more than a million tons. The face of the vein at a depth of 700 feet, measured vertically, is about 110 feet wide at its widest part and extends 80 feet above the floor of the mine. In general, a vertical section through the ore body is of crescent form, with one horn extending practically to the surface and the other stopping some distance short of the surface. On one of the horns mining has been carried on by the original company as high as 160 feet from the floor, the width of the vein at this elevation being about 6 feet. The Hudson Iron Company has also acquired a tract of 1050 acres

Fig. 3.—One of the 40-Foot Overshot Wheels Wrecked by the Hudson Iron Company.—It was geared to drive the air compressor, and by a long connecting rod, also shown, operated the Cornish pump.

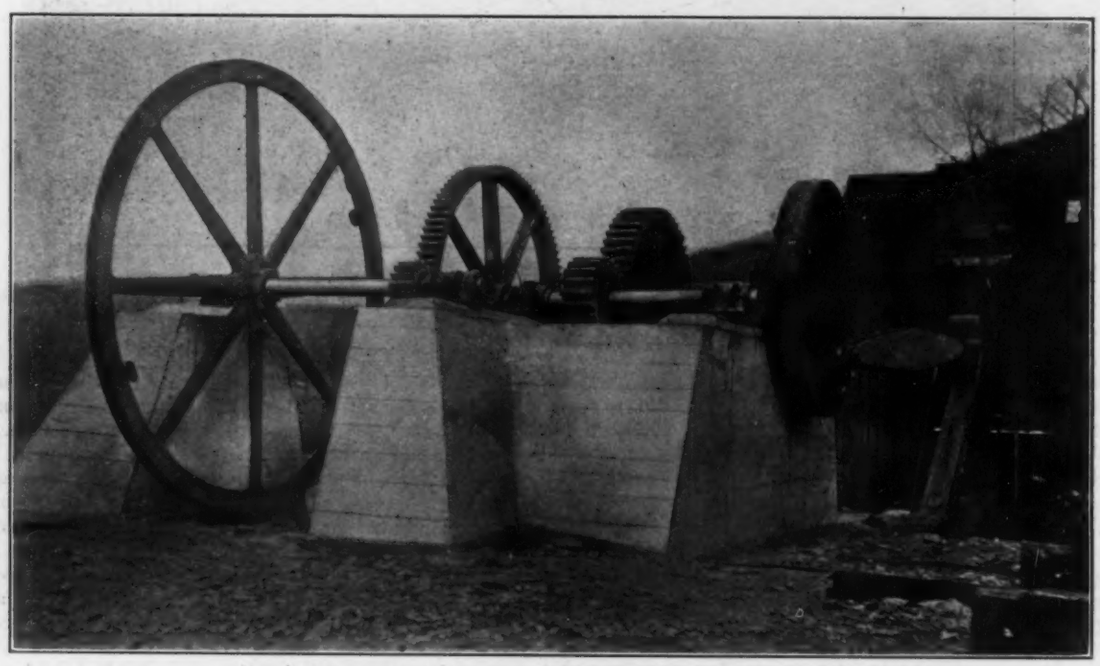


Fig. 4.—The New Gear for the Cornish Lift Pump.

of land within three-quarters of a mile of the Hudson mine. Drill work has shown the existence of a vein of Bessemer ore on the new property. The owners have thus far gone down only about 40 feet.

In the unwatering of the old Forest of Dean mine, in addition to the Cornish pump, two mine pumps have been employed, one being a vertical pump 24 x 12 x 16 inches, with 10-inch suction and 8-inch discharge openings, and the other of the horizontal type, with 8-inch suction and 6-inch discharge. The larger of the two latter pumps delivers water from the bottom of the mine to a sump at the bottom of the 270-foot Cornish pump shaft, which is about 700 feet from the entrance to the mine, measured on the slope. The three pumps have a total capacity of 1,300,000 gallons of water a day. In the past week another pump has been added, so that the water may be entirely removed and mining begun early in July. It is expected that 400 tons of ore a day will be mined, a large portion going to the company's furnace at Secaucus, N. J. F. A. Wilmot, Bridgeport, Conn., is president of the company, H. G. Villard, New York, vice-president, and J. M. Clark, New York, secretary and treasurer.

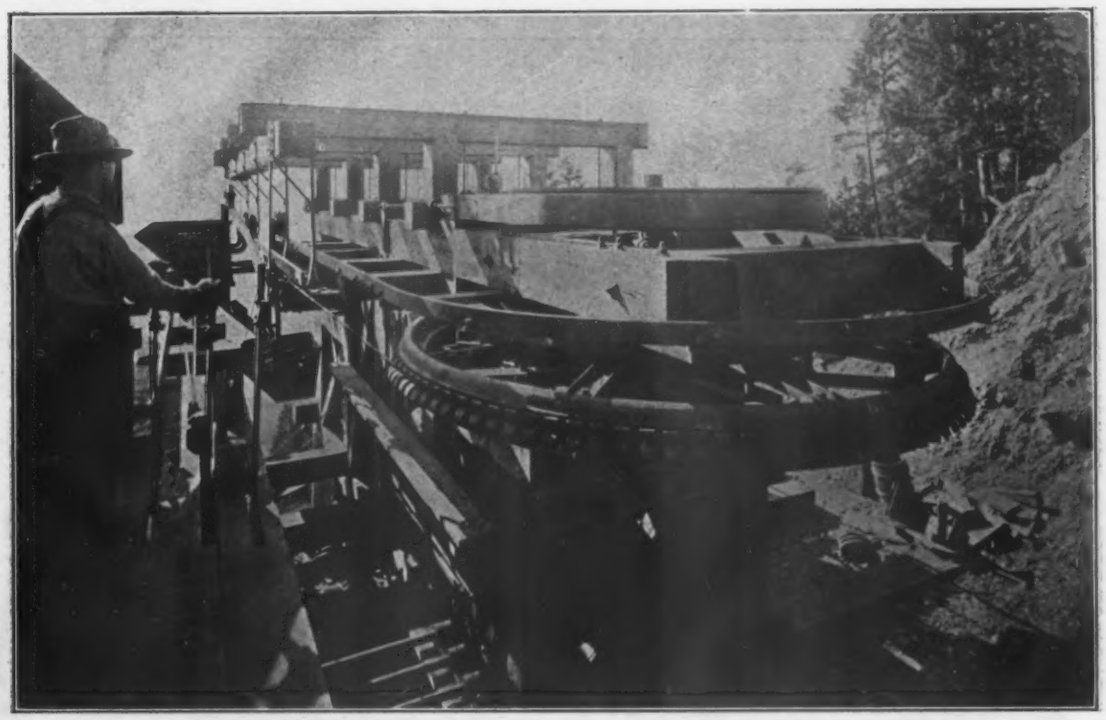


Fig. 5.—Loading Terminal of the Leschen Aerial Cableway, Showing Bin Chute, Loading Skip and One of the Traveling Buckets.

Proposed Subway at Pittsburgh.—A number of capitalists of Pittsburgh, among whom is F. T. F. Lovejoy, formerly secretary of the Carnegie Steel Company, have organized the Pittsburgh Subway Company and have asked the councils of that city for a franchise to build a complete system of subway and surface traction lines from the downtown section in Pittsburgh through the East End and Wilkinsburg. The estimated cost of the subway and traction lines is given as $30,000,000, and the projectors promise to push work as fast as possible. At present traffic through the Pittsburgh downtown districts to the East End is very much congested and is steadily growing worse, owning to the rapidity with which the outlying districts near Pittsburgh are building up.

In considering the introduction of a special engine for driving the fan of a heating apparatus in connection with a blower system of ventilation and heating it should be clearly realized that, a certain amount of steam being required for supply to the heater, the passage of that steam through the engine on its way to the heater entails very little loss in its heating power; so little, in fact, that the actual expense of driving the fan may be disregarded and the steam engine cylinder may be looked upon as merely an enlargement of the steam pipe. Evidently this feature of this system has its influence on the relative cost of driving the fan by engine or by electric motor, for in the employment of the latter there is no incidental return whereby the cost of power is reduced.

The Duty on Motor Cycles.

Considerable friction has developed between the customs authorities and importers regarding the values to be placed on motor cycles of foreign manufacture. It appears that for a long time the special agents of the Treasury Department in Europe were unable to procure accurate information dealing with the cost of manufacture and other details bearing on the question of the foreign selling price. Recently, however, the Government has become possessed of data showing that the importers have failed to have the machines invoiced at the correct foreign market values. As a result the collector at New York has imposed very heavy advances, in some instances above the seizure limit of 50 per cent. On appeal by the importers the reappraisement division of the Board of United States General Appraisers has in the main affirmed the increased invoice prices levied by the collector. The duty on the cycles is 45 per cent., and owing to this fact the importers endeavor to keep the invoice values as low as possible.

Tests have been made in California to determine the relative heating value of crude oil and local coal. One net ton of coal was found to be equivalent to 718 pounds of oil. As this oil weighs 7.6 pounds per gallon, and one barrel holds 42 gallons, the above quantity is expressed as 2¼ barrels. For locomotive purposes, where a better grade of coal is used, the requirement of oil to equal 2000 pounds of coal is 1037 pounds, or 3¼ barrels.

The Shenango Works of the American Sheet & Tin Plate Company at New Castle, Pa., containing 30 hot mills, and the largest individual plant owned by this interest, closed down June 16 for an indefinite period.

The New Prentice Turret Lathe.

The geared head high speed turret lathe shown in the illustrations is not intended to handle bar stock, but is for the express purpose of rapidly machining cast iron parts, such as gears, pulleys, &c., which require two or more operations and involve the resetting of tools if turned out in an ordinary lathe. The machine will take work up to 15 inches in diameter, and contains the features of the geared head engine lathe built by the same maker, the Prentice Brothers Company, Worcester, Mass., including the gear box, giving eight changes of speed and the quick change feed mechanism giving 33 changes; also accomplished through a gear box. The turret is hexagonal, of heavy construction, and is provided with hand and power cross and longitudinal feeds, with adjustable stops for the feeds in all directions. There are six stops for the longitudinal feeds, which revolve automatically with the turret, or may be used independently by disengaging the stop drum, thus rendering it possible to use their partly finished peripheries. All that remains to be done is to put each blank on an arbor lightly and finish the outside diameter to size. By this procedure the danger of distorting the bore by forcing the blank on an arbor sufficiently to withstand the stress of a heavy roughing cut is avoided.

The hollow hexagonal turret has a long, substantial bearing on the bed. As before stated, the turret has cross traverse, and to provide for rotating the drum carrying the six adjustable stops for the longitudinal feeds when the turret is rotated an interesting mechanism is employed, which is independent of the crosswise position of the turret. On the bottom of the turret is cast a large bevel gear having 168 teeth, which meshes with a bevel pinion of 24 teeth splined to a shaft extending at right angles to the bed and under the turret. This pinion is free to travel on its shaft when the carriage is fed cross wise. The ratios between the gears is 7 to 1, hence for each one-sixth revolution of the turret the shaft will make one and one-sixth revolutions. The shaft through miter gears transmits its motion to a longitudinal shaft,

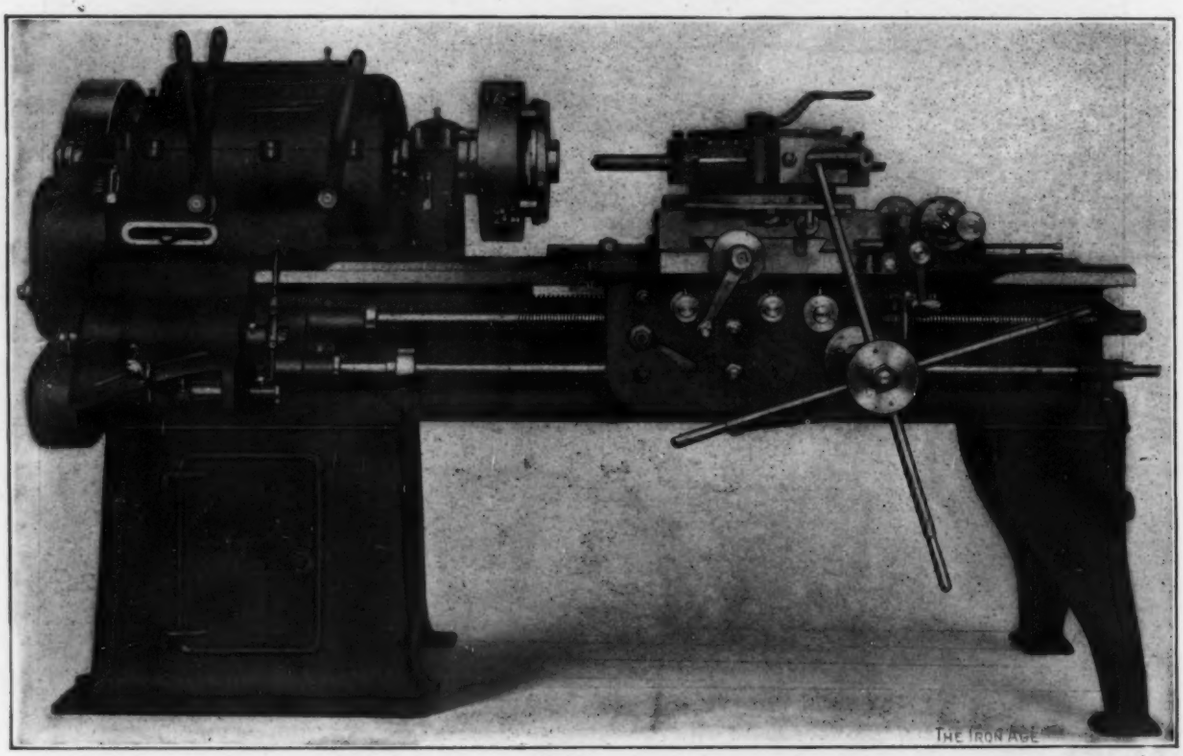


Fig. 1.—The New Geared Head Universal Turret Lathe Built by the Prentice Brothers Company, Worcester, Mass.

one tool for more than a single operation. The cross feed has 12 adjustable stops, six in either direction, which are operated independently of the turret. All stops are numbered. The wide range of cross traverse makes necessary the wide range of speeds provided in the head of the lathe, and from the nature of the work performed by a machine of this type the quick change feature is an important one. Another point emphasized by the builder is the cheapness of the working tools required. For steel work the machine will be equipped with an oil pan and pump.

In the illustration, of which Fig. 1 is a front elevation and Fig. 2 a top view of the machine, an example of the work it is intended to perform is given, a gear blank being held in the chuck and the necessary tools in the turret. This gear blank is to be finished entire. The hub is first bored with a double cutter, and is then trued up with a single cutter boring tool and reamed to standard size. The end of the hub and side of the gear are next faced off with tools similar to the ordinary lathe tools. The hub is then turned to proper diameter, and one-half of the circumferential face of the blank is turned almost to size. The whole lot of blanks is thus partially finished, after which the operations are repeated on the unfinished sides of the blanks while they are chucked on which is connected by spur gears to the shaft of the stop drum, giving to the drum one and one-sixth revolutions to each revolution of the turret, which brings the proper stop into position for each position of the turret. This arrangement was found necessary to avoid an interference that would have made the cross traverse impossible if the stop drum were given the same degree of rotation as the turret. If the operator wishes to use two or more of the longitudinal stops for one tool the stop drum is unlocked by sliding a collar which disengages a pin clutch. The drum cannot be again engaged with the turret until the parts are in their original and regular relation, as there is only one hole in the drum for the pin clutch to engage. After the longitudinal stop has automatically tripped the feed, details of which operation will be considered later, it is necessary to hold the tool to the required stop during one or two revolutions of the work in order to form a perfect shoulder. This is accomplished by pressing upon the pilot wheel, which makes a positive stop between a dog on the front side of the bed and a bushing on the stop drum shaft.

The apron is of special design and of heavy construction. It is so arranged that the operator may start, stop and reverse the feed, both longitudinal and transverse, at will. The longitudinal feeds are tripped automatically

by a mechanism behind and at the side of the apron. The longitudinal stop drum normally travels with the turret, but its movement may be arrested for a brief period while the turret continues to feed. A spring on the end of its shaft is compressed at such times until a bushing prevents its further retarding, and the stop again continuing to move strikes the dog previously referred to, which releases the feed. During the time that the carriage is feeding and the stop drum pauses there is a movement of a spool on the drum shaft, which motion is transmitted through a finger and rocker arm to a horizontal shaft back of the carriage, causing it to rock slightly until a latch lever carried at its forward extremity, which may be seen in Fig. 1 at the right side of the apron, releases a dog on a vertical spring stud just beneath it. The spring stud having been released drops until it reaches a stop on the spring stand. This motion of the stud is transmitted through a long lever beneath the apron, pivoted on a stud extending under the apron transversely and connected with a link which throws a clutch on the feed rod, disengaging it from the driving bevel pinion and stopping the feed. To reverse the feed the spring stud dog is turned 45 degrees, which permits it to pass its stop. This additional drop causes the clutch in the apron to engage the opposite bevel pinion which reverses the feed. This device operates the reverse for both longitudinal and cross motions of the turret.

The six cross feed stops for each direction do not operate automatically with the turret, but will automatically trip the cross feeds. This is accomplished by a friction device on the cross feed screw, consisting of two friction disks with a fiber washer, one splined to the screw the other meshing with the cross feed gear. In addition there is a center stop, consisting of a lever at the front of the carriage, which, being thrown over, arrests the carriage in its central position. There is also, of course, the usual latch pin for centering the turret in each of its six positions of rotation. The stops of the cross traverse may be used on a single tool if desired up to any required number, as in the longitudinal traverse.

The lathe is provided with a screw which will permit the cutting of any standard thread, and which may be used for carrying very coarse feeds. A simple locking device is provided to prevent the simultaneous engagement of the separable nut on the feed screw and the feed clutch. When the clutch on the feed rod is engaged with one of the driving bevel pinions a rod connected to the clutch throws a lever, so that a pin on its end enters a T-slot in the bottom of the nut, holding it open. While the lever is in this position it is impossible to throw in the nut. The clutch must be in its central position to allow the separable nut to be engaged, and when engaged the clutch is locked against operating.

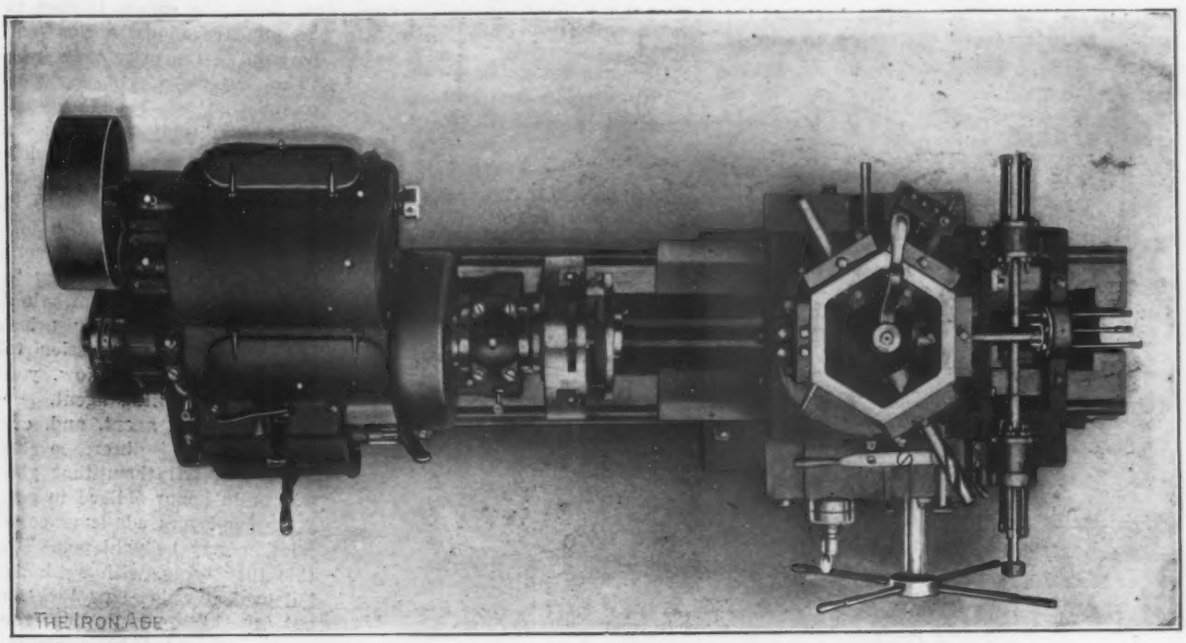


Fig. 2.—A Top View of the Prentice Geared Head Universal Turret Lathe.

The Fire Brick Duty.

The Board of United States General Appraisers, June 16, considered for the second time in the past two years the classification under the tariff law of bricks used for lining retorts. The specific protest decided by the board stood in the name of F. Behrend, New York, but the issue is of general interest to importers of material of this kind as well as operators of reduction plants. The merchandise was invoiced as "retort settings," but duty at the rate of 35 per cent. was collected under the provision in the tariff for "articles composed of mineral substances." The importer maintained that the merchandise should be admitted as "fire brick," with duty at the rate of $1.25 per ton. Several other claims were made, but none of them was considered by the board.

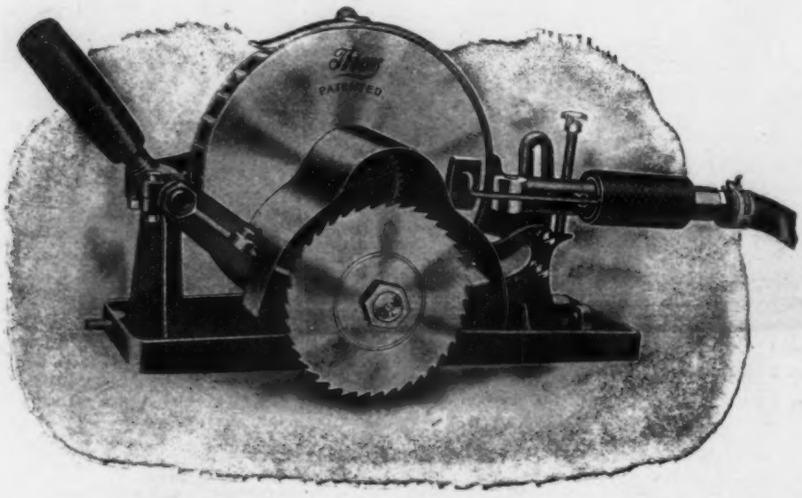
General Appraiser McClelland, who writes the decision for the customs tribunal, sustains the claim for duty at the rate of $1.25 per ton, but remarks that this action is solely on account of the ruling of the Federal Circuit Court in a previous case. Were it not for the court decision, Mr. McClelland says, the board would find against the importer. As it is, the lower tribunal is constrained to grant the lower rate of duty. It is considered likely that the Treasury Department will take the latest case into the courts for further litigation in the hope that the Court of Appeals or the Supreme Court will make a final ruling in the matter.

The New England Foundrymen's Association.—This association held the first of its summer outings at the Point Shirley Club, Winthrop, Mass., June 13. Fifty-five members and guests were present at the excellent dinner and afterward listened to an interesting talk by F. R. Boocock, secretary of the American Antiboycott Association, on the objects and benefits of the association. President Walter B. Snow occupied the chair. Secretary Fred F. Stockwell announced the death of George B. Buckingham of Worcester, and a committee to prepare resolutions was appointed, consisting of H. A. Carpenter, A. Carpenter & Sons Foundry Company, Providence; J. A. Colvin, Worcester, and Patrick Shields of the Shields Foundry. It was announced that the next meeting of the association will take the form of an outing at Bass Point, Nahant, Mass.

The Thor Air Driven Portable Saw.

A portable wood saw driven by a turbine operated by compressed air, which is manufactured by the Independent Pneumatic Tool Company, Chicago, is shown in the accompanying illustration. Air is admitted through a throttle and passes through a conduit cast in the frame on the back of the machine to a governor valve which is mounted on the hub of the turbine. It is operated by centrifugal weights, which move a collar laterally against spring resistance and operate the valve. Three ports discharge air against the buckets, of which there are 35. A pinion on the turbine shaft drives the saw through a train of gears, which reduce the speed from 8000 revolutions per minute at the turbine to 5000 revolutions per minute at the saw; or, by shifting an intermediate gear, the saw can be operated at the full speed of the turbine for light work.

An adjustable grooved bearing permits raising or lowering the saw shaft so as to permit the use of larger or smaller saws, this vertical adjustment being accomplished by a set screw. As will be seen by the illustration, the machine sets on a base resembling a hand plane. The bottom of this base is polished, so that the machine is easily moved along the work. A brake at the side of the turbine is so arranged that when the air is shut off it automatically presses against the turbine, and when the air is turned on is automatically released.



The Thor Air Turbine for Driving a Wood Saw or Emery Wheel, Built by the Independent Pneumatic Tool Company, Chicago.

One of the largest uses for this tool is trimming roofs of freight cars in car shops and for ripping wood generally. It is adapted to lumber up to 1½ inches or in some cases 2 inches thick. The air turbine is also used for operating an emery wheel, the wheel being placed on the shaft instead of the saw for surface grinding.

Customs Hearings in New York.

The so-called "open hearings" before the Board of United States General Appraisers, ordered by the President at the request of the German Government, do not appear to be giving the satisfaction anticipated in certain importing quarters. The open hearings have been on trial for three months and it is therefore possible to make an estimate of their value. According to some prominent importers the discretion given the board to withhold open hearings when the interests of the Government may be prejudiced thereby reduces the concession to one of little or no value. Another complaint relates to the action of the customs court in receiving testimony privately submitted to the tribunal in reappraisement proceedings, even when the formal proceedings have been on the open order. On the other hand, importers in competing lines to the merchandise under investigation show a strong disinclination to appear before the board at open hearings and give testimony regarding foreign market prices and other details many of which are held to be trade secrets. Owing to this unwillingness on the part of merchants and others to come before the tribunal at open hearings, counsel for the Treasury Department and the members of the Board of Appraisers are experiencing difficulty in procuring reliable information concerning foreign prices. Of the nine members of the customs court only one is understood to favor the open hearing plan.

Dr. Raymond on Engineers' Commissions.

In the course of an address on Professional Ethics delivered by Dr. R. W. Raymond, secretary of the American Institute of Mining Engineers, to the graduating class of Lehigh University, he made the following reference to the acceptance by engineers of commissions on purchases:

"Perhaps the commonest question of casuistry occurring in modern business is that of commissions. As the agent of your employers you have to purchase a steam engine. After getting the prices and inspecting the engines of all the manufacturers you decide upon the machine most suitable, on the whole, for your purpose, and in all legitimate ways beat down the sellers thereof to their lowest price. Just as you are about to close the bargain at the price they say: 'This covers, of course, your commission of 10 per cent.' When you reply that you do not expect any commission and suggest that, instead of paying it to you, they take it from the amount of the bill they send to your employers they tell you that according to some trade agreement they cannot charge a lower price, but can pay a commission to the selling agent. Now, you are not the selling agent, but the purchasing agent, and, explaining this difference to them, you tell them that you will be in honor obliged to pay your employers whatever commission may be paid you. To this they reply, with a kindly but cynical smile, that they do not care what you do with the money after you have got it, and you see clearly that they regard your protestations of honor as part of the formula which precedes your acceptance of the money. They do not really believe that you will not keep it if you get it.

"I am repeating an episode of my own experience, and perhaps my solution may be of use to you. I declined the commission offered in currency; required it to be put in the form of a check to my order; indorsed that check to the order of my employers and presented it to them, leaving them, if they saw fit, to return it to me as a legitimate perquisite of my position. They did not see fit, and they were quite right. But the most important feature in my action was that the return of the check, thus indorsed by me in their favor, convinced the manufacturers of my honesty as no amount of high toned oratory on my part could have done."

On Saturday, June 16, members of the Engineers' Society of Western Pennsylvania visited the Edgar Thomson Works of the Carnegie Steel Company at Bessemer, Pa. Included in the equipment of this plant, and which the visiting engineers saw with great interest, are two 1500 horse-power motors, the largest ever built for driving a rail mill; the largest Bessemer converting plant in the world; a 350-horse-power experimental gas driven blowing engine; foundation for a gas driven blowing engine with capacity of 20,000 cubic feet of free air per minute, and the concrete retaining walls for the ore yard, 30 feet high and 1300 feet long.

The Master Car Builders' Convention.

The fortieth annual convention of the Master Car Builders' Association was held at Atlantic City, N. J., June 13 to 15. Joseph E. Buker of Chicago, president of the association, and assistant superintendent of machinery of the Illinois Central, delivered an interesting address in the course of which he said:

"One of the most important subjects to railroad men in the operating department to-day is the evolution of motor cars for suburban and branch line service, and on the mechanical department will devolve the duty of working out both theoretically and by actual practice the type of car and method of generating and applying power most suitable for this new departure. I not only voice the sentiment or prophecy of conservative authorities as to the probable future growth of the automobile and motor car business in meeting the demands for street and highway use, but I believe that a permanently increasing demand will have to be met for similar cars for railroad companies, and it therefore behooves us to take hold of this question, or such portions of it as properly come within the scope of our several jurisdictions, to the end that we may be found fully equal to the occasion when called on to solve the problem, which also involves the substitution of electricity for the steam engine.

"The introduction of steel in car construction seems so eminently proper from all standpoints that there should be no hesitation in preparing the way for its more complete and permanent substitution for wood.

"In the matter of a standard coupler, I desire to impress upon you the inconsistency of our position, in that there are still in use a variety of car couplers with a multiplicity of unlike parts, all coming within the M. C. B. requirements, which should through the committees assigned yield to a process of elimination resulting in one single standard M. C. B. coupler, as the term literally implies, and one that fully meets all requirements of the Interstate Commerce Commission's safety appliance act. There is room for much progress yet in attaining a great degree of uniformity of parts of standard design that will not only facilitate car interchange and contribute to a high degree of safety, but will, when accomplished, effect a great saving to the railroad companies."

Joseph W. Taylor, Chicago, secretary, in his annual report showed the affairs of the association to be prosperous. Of active members there are now 356, with 243 representative, 13 associate and 19 life members, a total of 631. Only four members died during the past year. He pointed out that foreign countries when ordering cars built here invariably prescribe the association's rules as the required regulations in their construction. The Italian Government is now having cars built in Delaware subject in every particular to those regulations.

Edward A. Moseley, secretary of the Interstate Commerce Commission, in accordance with an established custom, was introduced and addressed the convention, chiefly with reference to the safety appliance law, its operation and its enforcement.

At last year's convention F. W. Brazier, F. P. Huntley, R. P. C. Sanderson, H. C. Buhoup, A. Stewart, Samuel L. Smith, T. S. Lloyd, S. P. Bush, C. E. Fuller, W. L. Jacoby and J. T. Chamberlain were appointed a special committee on composite design of coupler. Associated with them was a committee made up of representatives of coupler manufacturers. The committee reported that it had found it impossible to carry out its instructions. It was agreed that only three or four of the couplers made complied reasonably well with the interstate commerce safety appliance act, but the manufacturers were not willing to give up their patent rights and surrender them to the association, because they were asked to surrender a considerable and valuable portion of their stock in trade, whereby they control the manufacture of couplers for their own benefit. The report concluded as follows:

"The buying of couplers has practically narrowed itself down to three or four makes in this country, and the elimination of the many different patterns being already in progress, as the old couplers disappear, renewals all being made by couplers of three or four makes, the principal source of annoyance now existing will be eliminated."

The committee on brake beams, A. E. Mitchell, Prof. W. F. M. Goss, R. B. Kendig, W. E. Sharp and G. W. Wildin, submitted specifications and tests for brake beams for 60,000-pound, 80,000-pound and 100,000-pound capacity cars, and recommended that after September 1, 1910, all cars not equipped with brake beams built in accordance with these specifications be subject to rejection in interchange on account of improper equipment. After discussion the proposed changes and modifications were referred to the Committee on Standards.

Prof. W. F. M. Goss, William Garstang and George W. West, who constitute the standing Committee on Brake Shoes, in connection with a report of tests made and their results, stated that thus far the committee has concerned itself with the frictional qualities of brake shoes. The processes of the laboratory proceed too slowly to permit of the wearing qualities being tested. Road tests are the readiest means of determining endurance. The committee was convinced, however, that many interests would be served if manufacturers, in submitting shoes for test, could be given a statement covering wearing qualities as well as a statement covering coefficient of friction. It is also possible that if a satisfactory test could be formulated, specifications covering wearing qualities might be framed. In its consideration of this matter the committee reached the conclusion that such tests are possible, provided some additional mechanism could be attached to the testing machine.

The election of officers resulted as follows: President, W. E. Fowler, Canadian Pacific, Montreal; first vice-president, George N. Dow, Lake Shore, Cleveland; second vice-president, R. F. McKenna, Delaware, Lackawanna & Western, Scranton, Pa.; third vice-president, S. W. Burnett, Erie, Buffalo; treasurer, John Kirby, Adrian, Mich. After adjournment the Executive Committee met and reappointed Joseph W. Taylor, secretary. Mr. Taylor has been annually elected since 1896, without the slightest opposition.

For the adequate display of the hundreds of exhibits more than 60,000 square feet of floor space on the Steel Pier was used. The locomotives, passenger cars, electric motors and express and baggage cars were shown on the tracks of the Pennsylvania and the Reading railroads.

Of the more than 250 exhibitors Philadelphia was represented by 26 and Pennsylvania by double that number, while New Jersey was represented by 15 and Delaware, although less in number, also made a good showing. The exhibits were of such great extent that they almost constituted a railroad exposition. The aggregate value of the display was estimated at more than $1,000,000.

The Allis-Chalmers Company has taken particular pains to develop at Milwaukee the social life of its employees, many of whom went to that city from Chicago and other points during the past year. For more than a year the company has maintained a club house, a few blocks from the Clinton street plant, for its office employees, and with great success. A new club house will be erected at West Allis by the company to promote the same objects and to provide a place of recreation for the large number of employees who will spend their days at West Allis. The company has recently bought a tract consisting of 80 lots, and plans are now being prepared for the erection of a club house, having a frontage of one block, partly one story and partly two stories in hight, which will contain reading and lounging rooms, kitchen, dining room and other departments for both men and women. The grounds around the club house will be parked and made available for those who desire to use them for tennis and other outdoor sports after working hours. Plans are being made for the transfer of the entire office force from the Clinton street office to West Allis.

Sheffield, Ala., is becoming quite a stove manufacturing center. It has three stove foundries in successful operation, and a fourth company is being organized, with a view to engaging in business speedily.

Cold Galvanizing.

The Process and Apparatus Employed by the U. S. Electro Galvanizing Company.

An article entitled "Electrolytical Galvanizing," by Henry I. White, printed in *The Iron Age* January 18, 1906, aroused quite a little interest, as evidenced by the discussion which ensued and was printed under the head of Correspondence in three later issues, dated respectively January 25, February 8 and March 8, 1906. It has seemed desirable, in view of the apparent lack of general familiarity with the cold galvanizing process, to give an outline of it and description of the apparatus employed by the U. S. Electro Galvanizing Company, 1 to 9 Park avenue, Brooklyn, N. Y. The process is that patented by Louis Potthoff, president of the company, and is especially interesting because of the ingenious handling devices used in accomplishing the heretofore difficult galvanizing of small articles and pipes, rods, &c. The process for electro galvanizing was originally introduced in this country about nine years ago, and the apparatus and devices above mentioned are equally applicable to electro plating with various metals besides zinc, including nickel, copper and brass.

At the address above given the company operates a demonstrating plant covering 10,000 square feet of space, containing nine tanks, 16 to 24 feet long, holding over 10,000 gallons of solution, where the different patented devices are in constant operation on jobbing work. An additional plant at 229 Pacific street in the same city is devoted to the galvanizing of pipe and bar iron. The company grants licenses for the use of its patents and manufactures and installs dynamos and complete outfits for cold galvanizing and any other electro plating. It is prepared to equip plants of any size, from a capacity of a few hundred pounds to as large an output as may be required.

Among the advantages claimed for the process are that the galvanizing solution employed is permanent and does not have to be renewed, but improves with age and use; that the devices for handling effect a large saving in the operations of cleaning and plating; that the handling is cheaper than in the hot process; that fuel is saved and the use of sal ammoniac dispensed with; that the great expense of keeping up furnace fires day and night is avoided; that there is no dross; that the coating can be regulated to any thickness required; that the nature of the material is not affected, and that no recutting is required on bolts, screws, nuts, fittings or any other threaded articles.

For handling different materials four devices have been patented: One for all long material from 6 inches up to bar iron or pipes 20 feet and longer, with which pipe can be coated inside and outside, or outside only, and in which sheet metal can also be coated; another for small articles of any description, such as nails, screws, small bolts, stampings and castings, &c.; a third for wire of all kinds, and a fourth for irregular shaped material which can only be handled by hand.

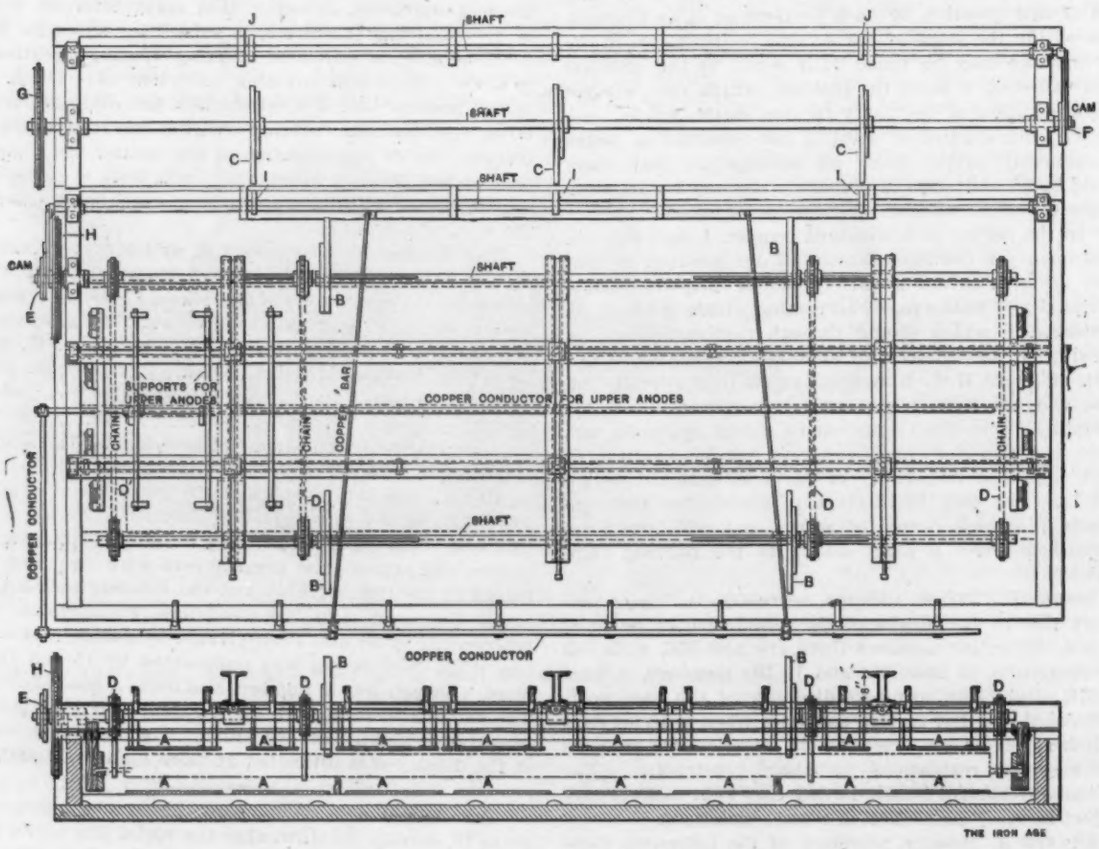


Fig. 1.—Plan and Front Sectional Elevation of the U. S. Electro Galvanizing Company's Pipe and Rod Handling Device.

The construction of the pipe and rod galvanizing apparatus is well brought out in Fig. 1, which shows a plan and front sectional elevation. Fig. 2 best shows the progress of the material to be galvanized through the apparatus, this being a side sectional elevation. The apparatus comprises a wood tank or two wood tanks placed contiguously, the larger one containing the galvanizing solution and the smaller one hot water, in which the material is washed before it is finally discharged, with means for carrying the material through the baths. As may be seen, there are two endless chains on top of the tank, which are provided with pins of nonconducting material. The three-arm cast iron carriers at either side of the tank are used for introducing and discharging the material, and the chains with their pusher pins move the material slowly through the tank while it rolls on two copper bars, which are used for the double purpose of supporting the material to be treated and supplying the current for the electrolytic deposition of the zinc. The tank is constantly kept filled and while one pipe or bar drops out another one enters on the feeding side. The

speed is regulated according to the thickness of the coat required, the general time for galvanizing being from about one-half to three-quarters of an hour. The runways in the galvanizing tank slant so that the point of contact is constantly changing and an even coat is deposited. The anodes from which the current passes to the pipe or rod are placed above and below the work, which is represented by the dotted lines. In this way a more even coating is obtained, there being a better distribution of the galvanic action.

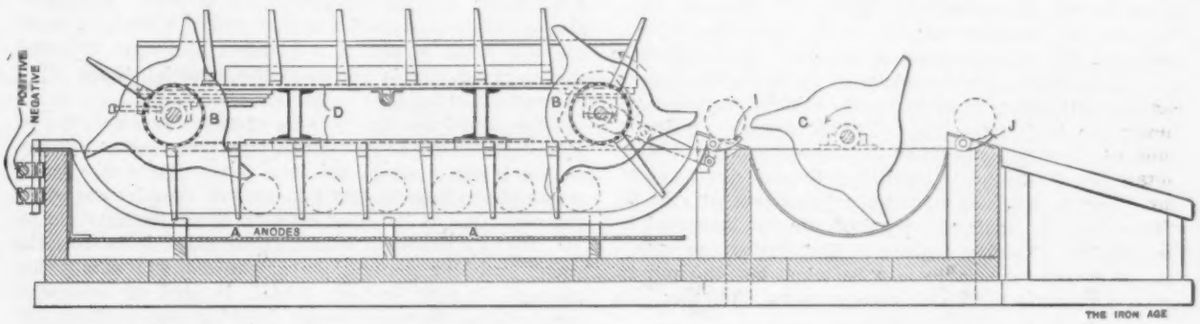


Fig. 2.—Side Sectional Elevation of the Pipe and Rod Apparatus.

When the pipe or bar iron reaches the delivery end of the tank it is held there for a short time while the solution drains off, and when released automatically the next set of three-arm carriers lower it into the hot water tank for washing off the solution and heating it, and later when resting on the delivery side of the water tank the water is drained off and it drops automatically to the floor. The size of the tank can be arranged according to the output and thickness of the coat required, so that about every minute one pipe or bar is finished. By this system sheet iron and roofing plate can also be galvanized very satisfactorily, it is claimed. The thickness of coating can be regulated by simply increasing or reducing the speed, and it can be so arranged that the output will not be reduced if a heavier coat is needed, provided the length of the tank is increased.

The construction is so well brought out in the drawings that a more extended description is hardly necessary. On the drawings the A's represent the anodes, the B's the three-arm carriers in the galvanizing tank, the C's those in the hot water tank, the D's the chains carrying the pushers for projecting the material through the galvanizing bath, E the cam operating the trip which detains the pipe between the galvanizing and hot water tank, and F a similar cam operating the strip that causes the work to pause just before being finally discharged. The drive of the apparatus is obtained from a motor connected by chains with the sprockets on the shafts in the hot water tank and the galvanizing tank, shown at G and H. The trips between the galvanizing and the hot water tank are shown at I, and those between the hot water tank and the final discharging point at J.

In Fig. 3 is shown an elevation and plan view of a rotary galvanizing barrel for the treatment of the small material. This barrel has no door for emptying or filling, these operations being accomplished through a lateral opening in the periphery of the barrel. This opening is covered by a swinging gate when the drum is rotating in the galvanizing direction, as shown by corresponding arrow, and is held closed while the opening is on the lower side of the drum by a guide and roller, the action of which may be understood from a reference to the elevation. While the barrel rotates in the galvanizing direction no material can fall out. To discharge the contents of the barrel it is rotated in the opposite direction, and with each revolution the pocket adjacent to the opening fills with material, and as it reaches the position shown in full lines the gate opens and forms a chute, allowing the material to fall out into the hot water tank, from which it is again removed automatically to the table or into a barrel completely finished. This is repeated until all the material is removed, ordinarily requiring about four revolutions.

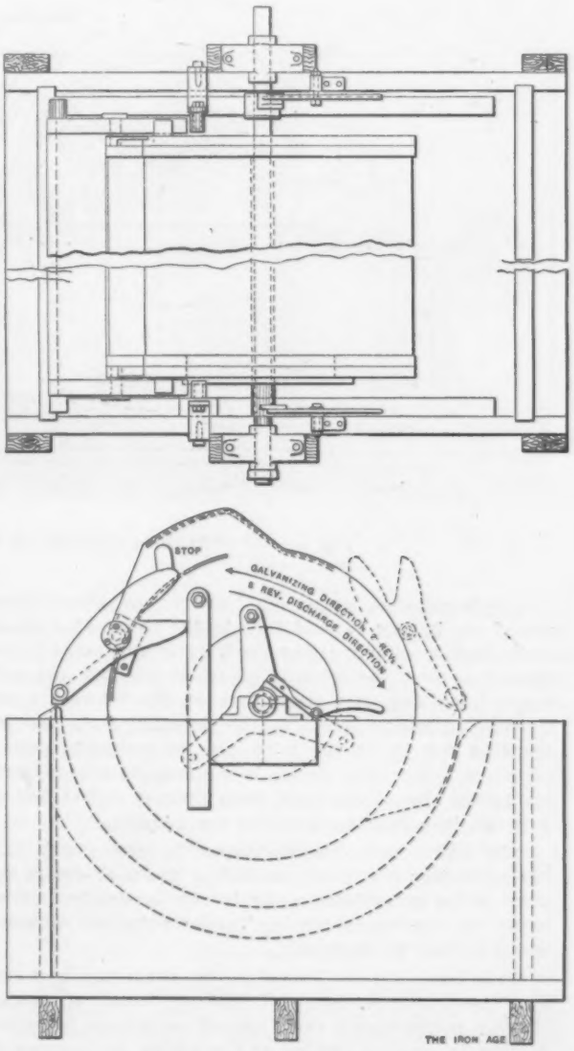


Fig. 3.—The Rotary Galvanizing Barrel for Small Material.

Referring to Fig. 4, which shows the association of the galvanizing and washing baths, it will be seen that when the gate is open in the position shown at the right of the drum material may slide into the wheel in the washing tank. Each of the four pockets of this wheel is large enough to contain the discharge of one pocket load from the barrel. After washing the material is removed from the washing bath by rotating the wheel, which carries the objects around until they are dumped from the right side on a table.

The barrel holds at one time about 150 pounds, which amount is thoroughly galvanized in from one-half to three-quarters of an hour, according to the thickness of coat required. When the barrel is empty it is then filled again and the direction of rotation reversed. It is stated that one man can handle about six or eight barrels and galvanize per day of ten hours from 5 to 6 tons.

The thickness of coat can be regulated by leaving the material for a greater or less length of time in the galvanizing barrel. The slow speed is just right to polish the material sufficiently to give a smooth, bright appearing coat, but there is not friction enough to rub the zinc off again.

In this apparatus there are anodes inside of the barrel, these being bars extending through the drum and connected with the three-armed spiders shown, and also circular anodes in the tank under the drum. As the barrel rotates the objects are constantly changing position, and the distance of the anodes from the objects varies, so that the summation of the effect of the galvanic action is uniform. The periphery of the drum is a porous hempen covering permeable to the solution in the tank into which the barrel dips. Current for the anodes is obtained through the shaft of the barrel by a brush bearing on the shaft, and is conducted through the arms of the spider to the bars at their extremities. It will be noticed that the shaft and bearings are not immersed in the solution. Another feature is that during the operation of the barrel samples can be taken out and put in without stopping it. The barrels may be made any size up to capacities of 500 pounds.

With reference to the third and fourth devices previously mentioned, of which, however, no illustrations are given, it may be said that in the third wire of all kinds and sizes may be handled. The apparatus is arranged so that the wire is potashed, pickled and galvanized, running from a reel through the different tanks slowly but continuously to the finishing reel. Before reaching the latter the wire can be polished without additional cost. This device is so arranged that, according to the size of the tnak, from 6000 to 10,000 feet of wire can be galvanized in about ten minutes.

The fourth device is constructed in such a way that the galvanizer sitting at one end of the tank enters the work to be galvanized, while it travels slowly and receives its coating, returning to the point of entrance, where it may be removed.

It is especially to be noticed in connection with the first three devices described that the point of contact changes automatically every second, so that an imperfect coating is avoided, where the handling or pushing is effected. This is an important point, as, with the old method of hanging material on hooks, racks, &c., it was impossible to apply a perfect coat, as the place covered by the hooks or racks would receive only a very thin coat under the very best circumstances, unless the point of contact is changed, which requires extra labor, making it quite expensive. Consequently this precaution is usually neglected, and the coating on such places will be only half as thick as on permanently exposed surfaces.

With the use of each of the devices when the process is once established the length of time proportionately consumed in plating or galvanizing each article is only that which elapses between the entering of each new piece, since for each one entered a complete one is discharged. All loss of time, such as is commonly taken up in wiring or hanging on hooks or racks, changing point of contact, &c., is avoided. The fact that the material is agitated in the bath also makes it possible to deposit a coat with greater rapidity and allows the use of a higher current. The cold galvanizing process, as compared to the hot process, has the advantage that a purer deposit of zinc is obtained, a good result of which is that the coating will wear longer, it is claimed, and that only the necessary amount is put upon the material, there being no waste coating, due to unevenness.

The applicability of the process seems to be almost universal, as everything from fine tools or springs to the heaviest structural iron can be treated without waste of breakage and at a lower cost than by any other process. One of the most striking things brought out in Mr. White's paper on electrolytical galvanizing was the rough handling material so galvanized will stand; for example, it may be bent, folded, twisted, or otherwise manipulated severely before injuring the coating. It is the only process that can be applied to the galvanizing of springs without destroying their temper, since it does not affect the nature of the material, and to a less extent it is important in the galvanizing of many materials the strength of which would be impaired by their being subjected to heat.

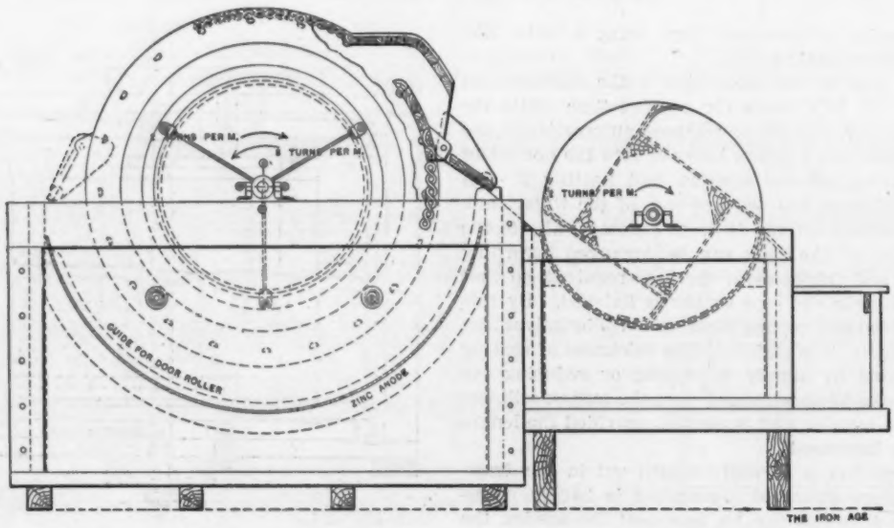


Fig. 4.—The Galvanizing Barrel as Operated in Connection with a Washing Bath.

The experiences of the recent earthquakes have forcibly emphasized the marked advantages of the short steel stack, which is all that is essential with a mechanical draft installation. High brick chimneys have proved to be sources of danger. Their wrecking on all sorts of buildings in the stricken region was no inconsiderable factor in the general destruction. Most of the power stations around San Francisco came through in pretty fair shape, save for the stacks, thanks to the fact that most of the plants were fairly well built and did not carry their weights too high. After this experience tall chimneys may be counted on as pretty certain to go in a severe earthquake. On the other hand, there is much to be said for short stacks and forced or induced draft. This construction, which has entered into recent equipment in Japan, suggests still another of the advantages of this modern system of draft production.

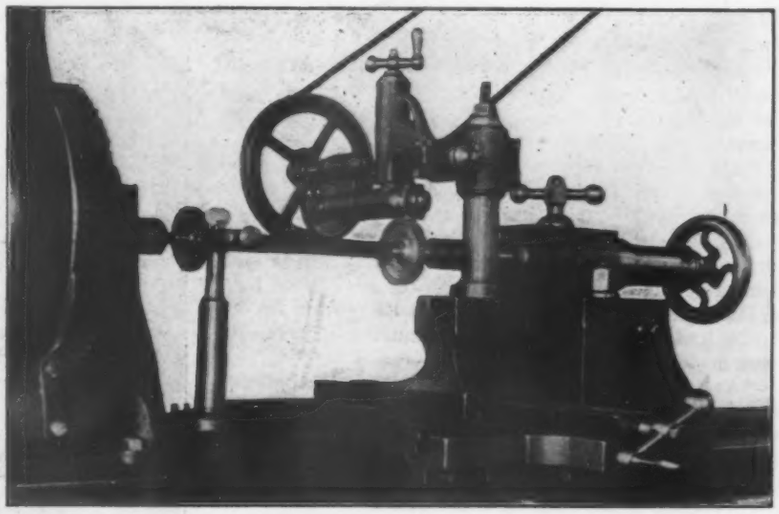
It is stated in the daily consular and trade reports of the Department of Commerce and Labor that a syndicate of Pittsburgh capitalists has undertaken to develop a deposit of vanadium under a concession from the Peruvian Government. Joseph M. Flannery is secretary of the company.

The McDonald Milling Attachment for Lathes.

A practical substitute for a light milling machine is being manufactured by the Brickner Machine Company, Tiffin, Ohio, this being known as the McDonald milling attachment for lathes. Its field of special usefulness is in the cutting of keyways, splining long shafts and cutting gears, and the range of work it can handle is claimed to be limited only by the size of the lathe it is used on. Another claim is that it can be as readily adjusted for the different classes of work as a milling machine.

As the illustration shows, the column of the attachment is bolted on the carriage in place of the tool post and the tool is driven by a right angle countershaft, which is furnished with it. From this countershaft to the machine a ¾-inch rope or round leather belt is used. The countershaft is provided with automatic take-up, so that the machine can be used in any position between the centers of the lathe, which allows it to be fed from one end to the other of the lathe on the carriage. While the lathe is in motion when the feed is running it is of course necessary to hold the work from rotating. This is accomplished by clamping the work to the dead center or by the index when cutting a gear, as shown in the illustration. Ample provision has been made for taking up slack in the spindle.

The tool is rigid throughout, and all parts are made sufficiently heavy to withstand severe and steady work. The shaft and pinion are of steel. The column is 2½ inches in diameter and 12 inches high. The working end of the spindle is turned and ground to fit cutters with a ⅞-inch hole. A double angle cutter is furnished with each machine, and other cutters can be furnished or obtained elsewhere. The tool without the countershaft weighs 75 pounds, so that it can be easily put in place on a lathe by one man. The depth of cut is adjusted by the ball handle, shown at the top of the machine in the illustration. The head is graduated to sixty-fourths of an inch, so that reasonably close vertical adjustment can be obtained. The machine is capable of cutting a ⅜ x ¾ inch keyway in a steel shaft at one cut, or will mill a four-pitch gear in cast iron at one cut.



The McDonald Milling Attachment for Lathes, Made by the Brickner Machine Company, Tiffin, Ohio.

The builder is emphatic in stating that the tool is not a makeshift, but a thoroughly practical milling attachment costing less than an ordinary milling machine, and having the advantage of not taking up any additional room in a crowded shop. Even where large milling machines are already installed the tool is considered to be very desirable, for the reason that it is easier to set up and adjust for certain classes of work than a large milling machine.

Iron Ore Briquetting in Spain.—Consular Agent A. E. Carleton, Almeria, states that the Alquife Mines & Railway Company, Limited, one of the largest iron ore companies in southern Spain, has begun converting its fine hematite iron ore into briquettes. For that purpose four horizontal kilns have been constructed, these being heated by producer gas. The briquettes are made by machine and are then placed in cars, which travel slowly through the kilns. The power for the screening plant conveyors, briquette machine and lighting is obtained from a river about 6 miles distant.

A feat in engineering was performed June 14 by Terry & Tench, steel contractors. They removed the old Broadway drawbridge over the Harlem River, New York City, from its pedestal to the pedestal of the new University Heights structure, a mile down the Harlem Ship Canal. Pontoons, water ballast and the tide were factors in the success of the removal. Two days afterward a new steel drawbridge, weighing 1600 tons, which had been constructed on the river near by, was successfully moved by the same contractors to the pedestal vacated by the old bridge.

A New Steel Plant and Finishing Mills at Pittsburgh.

Percy E. Donner, formerly general manager of the National Works of the American Sheet & Tin Plate Company at Monessen, Pa., with some associates has organized a company which is arranging to build an open hearth steel plant to contain probably 12 50-ton open hearth furnaces, a blooming mill, a combination mill, on which sheet bars or narrow plates up to 32 inches wide can be rolled, and a continuous sheet mill. Mr. Donner has taken out a number of patents for a continuous sheet mill and now has it about perfected. It was the original intention to build only a continuous sheet mill, but these plans were enlarged and the new company will also erect its own steel works.

The new works will be located in the Pittsburgh district in order to be near the source of supply of pig iron and heavy steel scrap for the open hearth plant, which will have a capacity for turning out not less than 1000 tons of basic open hearth steel per day. The sheet mill is expected to turn out upward of 200 tons of sheets per day, and will not make lighter gauges than No. 24, the balance of the product, some 800 tons, to be sold in the open market in the form of sheet bars and narrow plates. No contracts have yet been placed, but it is expected that bids will be asked for the erection of the buildings and mills within a short time. The offices of Mr. Donner are in the Frick Building Annex, Pittsburgh, and engineers have been working on the plans for the new mills for some time.

The South African yield of gold for May made a new high monthly record, reaching 46,729 ounces. The previous highest monthly yield was 44,574 ounces, in March of this year. The total output for the first five months of this year was 214,713 ounces, against 162,189 ounces in the same period last year .

Walter Kennedy, engineer, Pittsburgh, Pa., is preparing plans for a new blast furnace for James & Moore, to be located at Seattle, Wash. The furnace will be 18 feet diameter of bosh by 80 feet high, and will be equipped with all the improvements that accompany an up to date furnace of this size.

The National Association of Credit Men.

The eleventh annual convention of the National Association of Credit Men was held in Baltimore, Md., June 13 to 15. About 500 delegates were in attendance.

President O. G. Fessenden of New York delivered his annual address, in which he reviewed the history of credit men's associations and the salutary results achieved by them in placing business upon a sounder basis and in securing needed legislation.

The annual report of Chas. E. Meek, secretary-treasurer, showed a favorable condition of the association itself and of its finances.

J. B. Pearce, chairman of the Membership Committee, reported an increase in membership of 1511 during the fiscal year, making the total 7590.

Geo. L. Pender, chairman of the Committee on Credit Co-operation, reported:

"As far as our investigation goes, there are now 20 local associations that have organized bureaus for the interchange of ledger experience. It has been clearly demonstrated that the establishment of these bureaus does not in any respect conflict with the work to be done by such agencies as Dun's and Bradstreet's. Each of them has its separate and distinct work, and when each has concluded its duties, and the information obtained has been combined for consideration, the decision of the credit man should be intelligently and easily determined."

Eugene S. Elkus, chairman of the Committee on Credit Department Methods, reported that during the year there had been a continuance of the demand for association blanks. He also said:

"The adoption of rules by the clearing houses of different cities, putting into effect a schedule of charges for the collection of certain checks, has, during the past few months, been the subject of much discussion. It is not our intention to enter into this subject at length, the members being familiar with it, and the association having upon several occasions expressed its opinion by declaring itself favorable to the discontinuance of payments being made with local checks.

"As a possible means by which the use of local checks may to an extent be overcome, a member has favored the committee with a suggestion that a difference be made in the rate of discount allowed those remitting by checks drawn on par points as against remittances drawn on points coming under clearing-house rules."

The following important resolutions were adopted:

Resolved, That the National Association of Credit Men, in convention assembled, heartily indorses the action and work of the Joint Committee on Bankruptcy Law and Legislation, named at a conference held in New York City in December, 1905, which formulated the amendments that later were introduced into the Fifty-ninth Congress by Representative Palmer of Pennsylvania and Senator Spooner of Wisconsin; and be it further

Resolved, That we urge continued co-operation on the part of these national organizations along the lines followed by said joint committee, and that we pledge our earnest support to all movements having for their object the permanency of a just, equitable and wise bankruptcy law.

Whereas, The question of more uniform exemption laws in the various States is one of the most vital problems connected with interstate commerce, and inasmuch as a reform in that direction is more certain of accomplishment if our efforts are centered upon a definite plan stated in concrete form; therefore be it

Resolved, That our Legislative Committee, acting in conjunction with the national office, be requested to compile a brief statement of the laws now existing, pointing out their inequalities and objectionable features, and to prepare a form of laws or list of exemptions which shall be equitable to both debtor and creditor classes and adapted to the business conditions prevailing in various groups or States, arranging such groups according to geographical location and commercial development.

Chicago was selected as the meeting place for next year's convention.

A convention in the interest of smoke prevention in municipalities will be held at Detroit, June 27-29. The object of the meeting is to arrange for legislation looking toward a uniform and effective method of handling the smoke question in American and Canadian cities. Smoke inspectors in a number of leading cities and representatives of health departments have accepted the invitation to attend the convention.

The Hawley Traveling Grate.

Illustrated herewith is the latest improvement in chain grate stoker made by the Hawley Down Draft Furnace Company, Chicago. Fig. 1 is a view from the front of an installed grate with the hood removed, which normally covers the exposed grate bars. Fig. 2 shows the grate partly withdrawn, illustrating its accessibility for repairing, cleaning, &c. The sectional side elevation, given in Fig. 3, best indicates its construction and mode of operation. The main frame of the grate is built of steel I-beams and other structural shapes, giving it the greatest strength and stiffness for the least weight. The grate is supported on four wheels and can be easily and quickly removed from the boiler setting, thus affording ample working space for boiler repair men or masons. Connections between the members of the grate are made

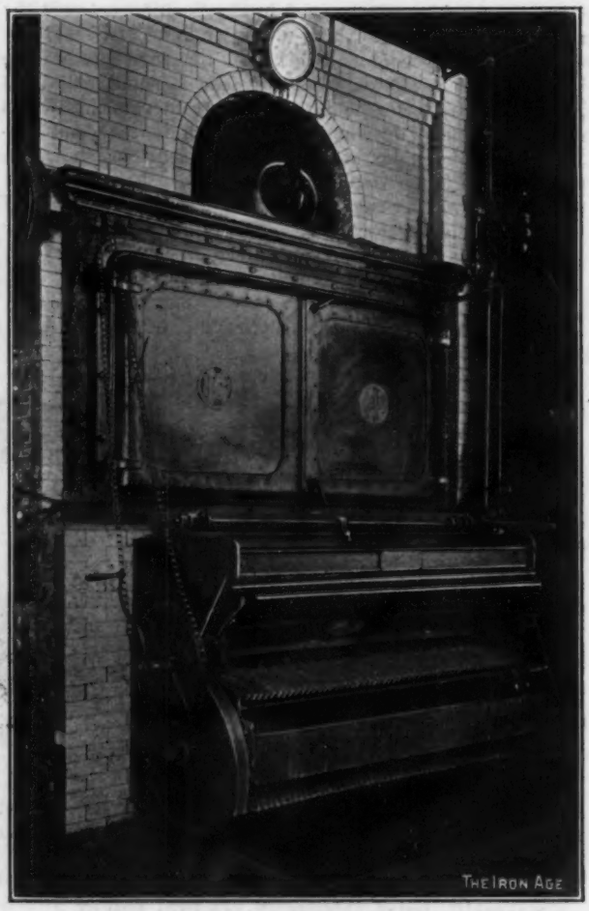


Fig. 1.—An Installation of the Traveling Grate Built by the Hawley Down Draft Furnace Company, Chicago.

by a simple yet effective fastening which permits the erection of the grate complete without employing expert workmen. The grate proper is composed of small, independent cast-iron bars, each section of these being loosely fitted over one flange of a steel I-beam. The other flange of the I-beam of each section is fastened at each end to a chain running over head and tail sprocket wheels. The chains are fitted with small wheels, which, bearing on the main frame, carry the grate and its load not only on the top or working side but also on the return. These wheels permit the moving of the grate with such ease that a complicated system of double gears, levers, ratchets, &c., is not necessary, a uniform rate of speed being secured by means of one set of gears and a chain.

Particular attention is called to the method of fastening the grate bars. Should one or more of the clips forming the grate burn out or break, by simply knocking the clip off the beam a new one can be placed in position in a moment without interfering with the furnace while in operation. These clips are 9 inches across. Each I-beam carrying the grate bars can be removed and re-

placed almost as readily. Being independent of one another and simple in design, expansion has no effect on them.

The shaft of the grate is fitted with four plates or dampers, which are so arranged that the compartments formed by them catch such clinker and ash as fall through when the grates turn over the rear sprocket and subsequently deposit them in the ash pit. These dampers at the same time restrict the flow of air over the rear of the grate. The coal hopper is equipped with a feed gate, composed of a steel beam or channel and fire brick. It is easily operated and enables the fireman to change the thickness of his fire at any time without stopping the grate or even emptying the coal hopper.

The grate normally has between 30 per cent. and 40 per cent. air space, but can be altered to suit any special requirements. The furnace will burn any kind of small bituminous coal, as well as screenings or slack or the higher priced nut coals with a great, if not greater, economy. The Hawley Company claims that the furnace will easily carry a continuous overload and be practically smokeless.

Fig. 2.—The Hawley Chain Grate Partly Withdrawn from the Fire Box.

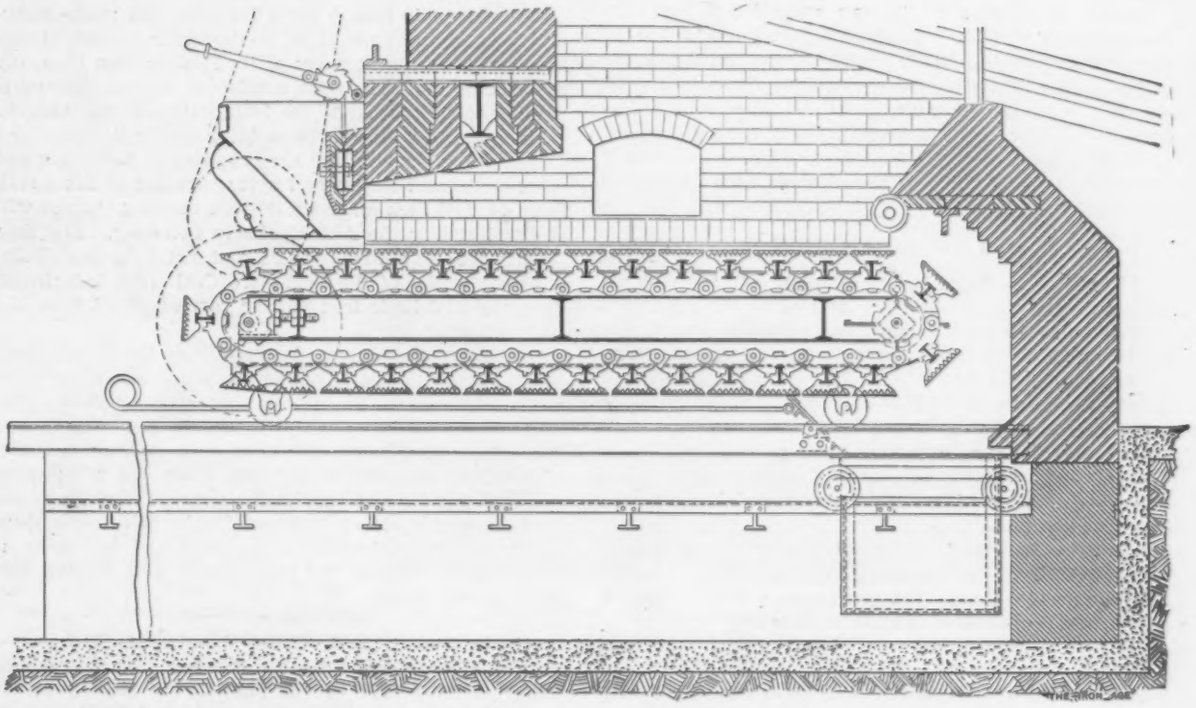


Fig. 3.—Sectional Side Elevation of the Hawley Traveling Chain Grate Stoker.

Extensive Improvements of the Tennessee Company.

A comprehensive programme of improvements for the Ensley plants of the Tennessee Coal, Iron & Railroad Company has been worked out in the past few weeks on the general lines indicated in the article in *The Iron Age* of May 10, 1906, page 1540. A number of details have been decided upon since the appointment of Vice-President and General Manager Crockard, whose first work for the company was a tour of the mines, coke plants, blast furnaces and steel works, with special reference to changes for increasing the output. The total expenditure to be made in the next year is about $2,500,000.

In the article above mentioned reference was made to the improvements in the blast furnaces and steel works at Ensley. The reconstruction of Furnace No. 5 of the Ensley group is nearly completed, and this furnace will probably be blown in early in July. Similar work on Furnace No. 4 is under way, the improvements, as in the case of Furnaces Nos. 6 and 5, consisting in the building of automatic charging equipment, including a skip hoist, Brown patent top and the construction of bins for raw material. Additional engines and boilers are also being provided at the Ensley furnaces.

Extending the Duplex Process.

The capacity of the open hearth plant at Ensley is to be doubled by the improvements about to be undertaken. While the Talbot and other open hearth furnaces have been under consideration, it has been decided to extend the duplex system which has been in use at this plant in the past two years. The present Bessemer converter in which the metal is first introduced for a short desiliconizing blow will be reconstructed. A second converter will be installed in connection with entirely new open hearth furnaces, which will be built at the end of the present group. Another mixer will also be provided and more cupola capacity for the melting of cold iron and scrap. A number of new boilers and additional gas producer capacity are also contemplated.

After the building of the new open hearth furnaces, the number of which has not been definitely decided upon, the present open hearth plant will receive attention, the purpose being to replace the ten existing furnaces one by one with entirely new units. The new open hearth furnaces to be built in the coming year will have a capacity of 25,000 tons a month. The duplex process makes it possible to take off 26 heats a week from each furnace as against 14 to 18 in ordinary open hearth practice.

Rail Mill Improvements.

Alterations in the rail mill equipment will increase the rolling capacity considerably. Heretofore the drawback at Ensley has not been so much lack of rolling capacity as the inability of the steel works to keep up with the requirements of the rail mill. The new programme will give larger output in all departments, the pig iron supply being supplemented with hot metal from the Republic Iron & Steel Company's Pioneer furnaces at Thomas, Ala. The rail mill steam plant will be equipped with automatic stokers; additional cranes will be installed; new soaking pits will be built and the capacity of the present pit furnaces increased. The erection of a central electric power station for the entire Ensley group of works has been decided upon. The generators will be driven by gas engines operating with blast furnace gas.

The rearrangement of railroad tracks in the yards of the Ensley works will require a considerable outlay of money. Eventually there will come an extensive remodeling of the storage bins and stockhouse at the Ensley furnaces so as to provide a complete and economical system for the mechanical handling of materials.

Charles Barr of the Lackawanna Steel Company has accepted the position of general superintendent of construction, and after the work in that line has been completed will take an important position in the operating department of the company. A number of other additions to the staff are in contemplation and will be announced shortly.

Improving Labor Conditions.

An important feature of the work of the new company is in the betterment of labor conditions. Since President Topping took charge of operations an expenditure of $200,000 has been made in providing houses for employees. Not only at Ensley but at the various iron and coal mining centers new residences have been erected, the number of company houses being increased by 200.

At several points laborers other than negroes have been introduced, the new element consisting chiefly of Italians and Hungarians. The company has looked after the betterment of conditions in its various communities, and has aided in the building of churches and schoolhouses. The purpose is to carry on systematic welfare work with a view to eliminating so far as possible some of the drawbacks that have attended the exclusive employment of negroes. It is the aim of the company also by the largest use of machinery to dispense with hand labor to a greater extent than heretofore. It is co-operating with the Alabama immigration movement in making known in Europe the advantages of the South as a field for the better class of European emigrants. To a considerable extent the emigration agencies have been putting the "Black Belt" label on the Southern States, as shown in their maps. To counteract the unfavorable impressions thus created the South is sending literature to Europe and through direct representatives is seeking, so far as may be done in compliance with the national immigration laws, to bring workers directly to the South without having them pass through Ellis Island.

The new Tennessee Company has found it less and less difficult to get men of the best skill and experience in iron and steel works operation to take positions in its service. Whereas for a long time Southern companies found it very hard to induce Northern engineers and men of operating experience to go into the South, applications for such positions are now frequent. This is considered to be the result of the gradual improvement in social conditions in the South and in educational and other advantages, particularly in the Birmingham district.

Pioneer Furnaces to Be Remodeled.

The Republic Iron & Steel Company has made appropriations to the amount of $500,000 for important improvements to the furnaces of its Pioneer Iron Company at Thomas, Ala. The work consists in the complete overhauling of two furnaces, the installation of new blowing engines and new stoves, the building of a ladle house and a pig casting machine and the provision of ladle cars and other equipment necessary for the carrying of hot metal. Four 44 x 84 inch and 84 x 60 inch blowing engines will be furnished by the Allis-Chalmers Company. The Ensley furnaces do not supply sufficient metal for the adjoining steel works of the Tennessee Coal, Iron & Railroad Company and basic iron will be carried direct from the Thomas furnaces.

Changes have been made recently at the Birmingham Rolling Mills of the Republic Company which involved the elimination of the old casting arrangements. Formerly small ingots were cast in groups and were broken down and rolled in the adjoining mill. Hereafter ingots of standard size will be cast, and these will be taken to the blooming mill of the Ensley plant of the Tennessee Coal, Iron & Railroad Company, to be rolled into slabs and billets for finishing on the plate and bar mills at Birmingham. There are two 35-ton open hearth furnaces at this plant.

Up to June 1, 1906, 870,000 immigrants had passed through Ellis Island in the present year, and the commissioner believes that by the end of the fiscal year, on June 30, the number will have exceeded 1,000,000. In the fiscal year ending June 30, 1905, the number of immigrants entering at all ports of the United States was 1,026,499. Austro-Hungarians predominate, with Italians and Russians close seconds. Of the total arriving at New York 31 per cent. settle in New York State, principally in New York City; 20 per cent. in Pennsylvania, 7 per cent. each in Illinois and Massachusetts and 5½ per cent. each in New Jersey and Ohio. In these six States settle 76 per cent. of the entire immigration.

A Three-Drum Tandem Lidgerwood Derrick Engine.

The double cylinder three-drum tandem hoisting engine shown in Fig. 1 is designed for use where it is desired to operate three hoisting lines or ropes, and needs only one man to run it. It follows closely in its construction the regular pattern standard two-drum hoisting engine built by the Lidgerwood Mfg. Company, 96 Liberty street, New York, with the addition of the third drum, and is particularly adapted for operating the Hayward orange-peel and clamshell buckets on bull-wheel derricks. For this purpose it is equipped with the Lidgerwood No. 4 swinging gear.

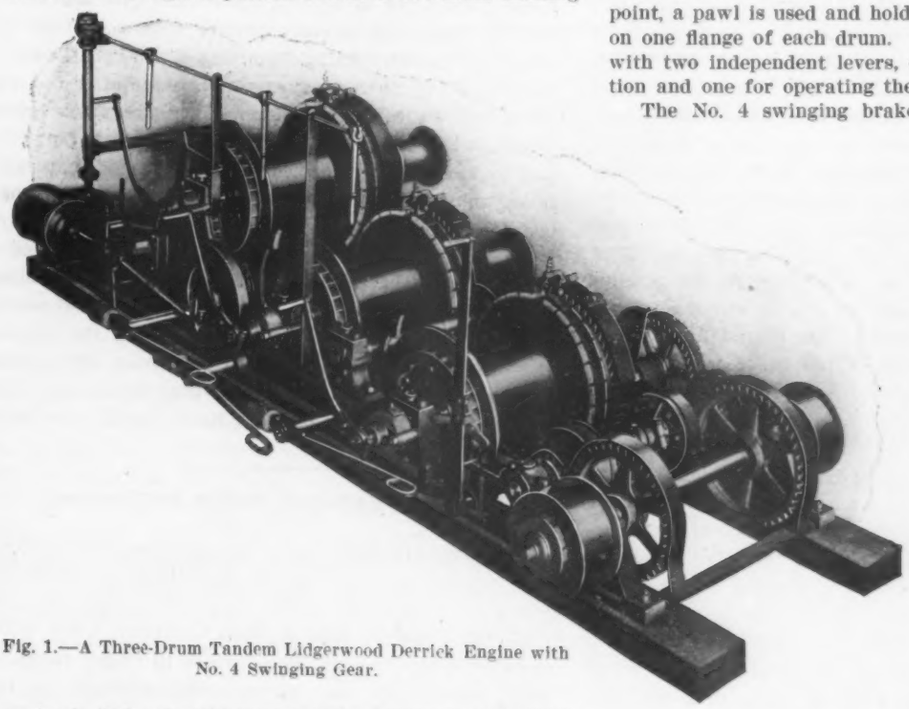


Fig. 1.—A Three-Drum Tandem Lidgerwood Derrick Engine with No. 4 Swinging Gear.

An equipment built and erected by the Dobbie Foundry & Machine Company, Niagara Falls, N. Y., for the Buckeye Dredging Company, Columbus, Ohio, shown in Fig. 2, furnishes an excellent illustration of the adaptability of this engine for work of this kind. It is intended to elevate gravel from barges in the river to the top of a building where the crusher and screen are located, and also to pile sand in the yard, and it was required that the derrick be located so as not to interfere with railroad traffic between the building and the river and to allow railroad cars to be loaded from either side while the hoist is in full operation.

The derrick is mounted on a steel tower 10 feet square at the base, 5 feet square at the top and 22 feet high. The 10 x 12 inch double cylinder three-drum hoisting engine is on the same platform, steam being taken from the main boilers which operate the other machinery. The boom is 80 feet long, of lattice work steel construction, and the derrick is rigged to handle a 1⅝-yard Hayward clamshell bucket. The weight of the bucket loaded is 6000 pounds. The two rear drums of the engine are used to operate the bucket ropes, which are ⅞ inch and lead from shears at the foot of the hoist direct to the drums. The forward drum is used to operate the boom topping lift, which is of ⅝-inch rope and passes over a rooster at the top of the mast direct to the engine. The No. 4 swing gear is employed to operate the 16-foot bull wheel for swinging the boom.

The drums are so arranged that they may be operated independently of one another, or they may be all operated at the same time for hoisting, lowering and swinging. Each is equipped with a cone friction of wood, a steel band brake with segmental wood lining and a ratchet and pawl. The cone friction is employed for hoisting the load and the band brake for lowering. When it is desired to hold the load suspended at any particular point, a pawl is used and holds the ratchet which is cast on one flange of each drum. The drums are each fitted with two independent levers, one for operating the friction and one for operating the band brake.

The No. 4 swinging brake which operates the bull wheel is controlled by one lever and consists of a drum shaft with two gear wheels and two drums and a friction shaft and two frictions and pinions, mounted on side stands tied together by two flat steel braces, secured to the bottom of the side stands and countersunk in them, making an independent apparatus which is mounted on an extension of the engine skids and fastened to the front end of the engine bed plate. It occupies a small amount of space and does not add much to the weight of the engine.

For similar conditions of a two-drum engine is sometimes used in connection with a single-drum engine; or a third drum is added to a two-drum engine to operate the three ropes and a single-drum engine with reversing gear is used to operate the bull wheel. While this arrangement will do some work it is very tiring to the engineer, who then has two engines to operate. His work is practically doubled, and the results accomplished at the end of the day are materially less.

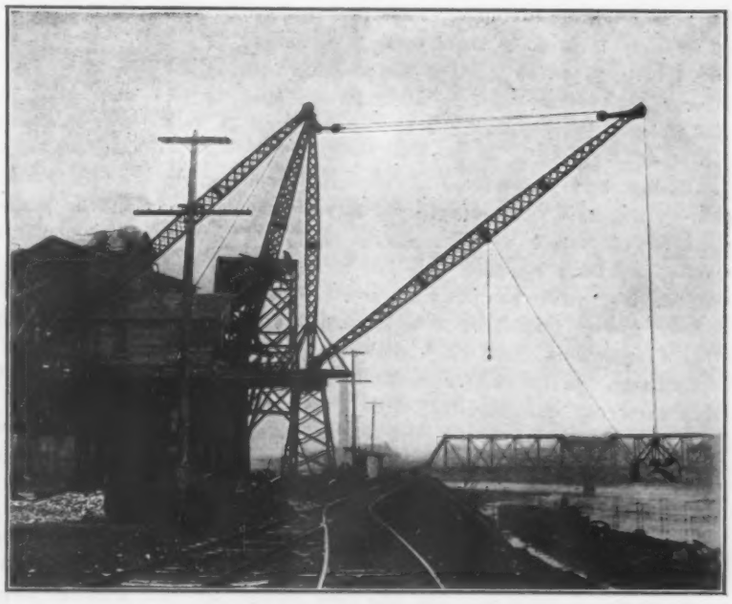


Fig. 2.—Exterior View of an Equipment Using an Engine of the Type Shown in Fig. 1.

With the three-drum engine equipped with a swinging gear as shown, all the work can be accomplished with one engine and one man to run it. All of the operating levers are so arranged that the engineer can see his bucket all the time, when loading, in motion, or dumping.

THE IRON AGE

1855—1906.

New York, Thursday, June 21, 1906.

DAVID WILLIAMS COMPANY, ... PUBLISHER
CHARLES KIRCHHOFF, ... } EDITORS
GEO. W. COPE, ... }
A. I. FINDLEY, ... }
RICHARD R. WILLIAMS, ... HARDWARE EDITOR

A Larger Place for the Molding Machine.

The longer the present contest lasts between union molders and foundrymen in different parts of the country the wider will become the field for the molding machine. Remarkable progress has been made in the past three years in the introduction of the machine for the molding of pieces not long ago considered entirely out of its reach. The stimulus of labor troubles has proved far stronger than theoretical statements of possible economies, even though based on experience with work not differing widely from some that molding machine manufacturers were urging founders to try on a machine. It has come about, therefore, that molding machine development has been a far livelier topic of discussion at meetings of the National Founders' Association than at those of the American Foundrymen's Association, the incentive of money saving pure and simple evidently proving less powerful than that of freedom from dictation as to quantity of output and shop administration and the ability to widen the circle of available foundry workmen. Since it can be easily computed that the ratio of apprentices that has long been in vogue in the foundries of the United States will not replace the losses from the ranks of journeymen molders, the molding machine undoubtedly has kept the situation from becoming acute. This function of the machine is now so prominent indeed that the argument of economy is in some cases entirely secondary at the outset to the question whether the machine with an apt laborer can replace skilled workmen on even terms. Economies, it is recognized, are to be worked out by time and study.

Chicago and Milwaukee, as important centers for heavy work, have been conspicuous in the recent movement for the larger use of machine molding. In Milwaukee one large company now has 100 machines, and since the May strike has put many heavy pieces on them that were never considered to be machine work. In another large foundry, from which machines have been practically barred heretofore because the attitude of the union made their use uneconomical, three types of machines have been introduced in the past few weeks with most satisfactory results. Men who were paid $2.50 a day as machine operators at the start are now receiving $3.50 a day. If history repeats itself, much of the work in this shop will never again be made on the floor.

Stove plate work, generally considered beyond the reach of the molding machine, has been undertaken in earnest latterly, and the strike at Utica, N. Y., last year led to the introduction of both squeezer and stripping plate types, with surprising results. In one foundry in that city work has been successfully turned out on the machine up to 44 inches in diameter and weighing only 120 pounds. On every such piece 7 pounds of iron was saved by the use of the machine. Commenting on the significance of the notable molding machine exhibit at the foundrymen's convention in Cleveland last week a well-known stove foundry superintendent said that without question machine molding will revolutionize the foundry business. In the near future, he predicted, a simple machine will be brought out that will print work, and a quick, cheap way will be devised of putting work on match plates. When that day comes, it was added, the stove shops will soon transfer themselves from the union to the open shop list.

As the issue has been shaped by events, the molding machine has come to be more and more an ally of the foundry employer in fighting his battles with the union. But the union can scarcely quarrel with a situation so largely of its own making. Starting out in open hostility to the molding machine, it saw its mistake after the machine had made its own place. Then the union asked for control of the machine "to develop its best possibilities." The reason annexed to this demand naturally failed to appeal to the manufacturer. The result has been that the "best possibilities" of the machine are being developed jointly by the foundry proprietor and a class of labor that nothing short of an entire revolution will ever put under the control of the molders' union. The large part taken by the pattern shop in the adaptation of the molding machine to new lines offers some chance for union interference, but the pattern shop, like the machine shop, has not lent itself readily to control by organized labor.

The Amalgamated Scales Settlement.

The rapidity with which the Amalgamated Association reached a settlement of the boiling and finishing scales with the Western Bar Iron Association, and later with the Republic Iron & Steel Company, after withdrawing some demands for advances in wages, indicates very clearly that the present administration in the Amalgamated Association is more conservative than previous ones. In the last five or six years this labor organization has deteriorated steadily in numbers and influence, and to-day is but a shadow of its former self. This was brought about by ill-advised attempts of its former leaders to force unwarranted wage scales and working conditions on the manufacturers which it was impossible to grant, and none of which the association was able to enforce. A bone of contention for some years between the Amalgamated Association and the sheet and tin plate manufacturers was the "limit of output" clause in the scales governing these mills. This prohibited workmen in union tin plate and sheet mills from making more than a certain tonnage of sheets and tin plates on a turn, the object being to force the manufacturers to pay a high wage for a limited output. There was no such rule in force in the nonunion sheet and tin plate mills, and its operation in the union mills worked a hardship on the mills that signed the scale and placed them on an unequal footing with their competitors. The Amalgamated Association was finally forced to remove the limit of output, but did not do so until it had lost most of the mills of the American Sheet & Tin Plate Company and some of the leading outside mills. The real downfall of the Amalgamated Association started with the loss of the Homestead strike in 1892, which was later followed by the breaking away of the Jones & Laughlin Steel Company, which closed its mills one week, refusing to recognize the association any longer, and started up its mills in full the next week nonunion.

The association has steadily lost ground in the last ten years, both in the East and West, and to-day is in no condition, either numerically or financially, to engage in a conflict. Whether the new administration, under the leadership of President P. J. McArdle, can build up this once powerful organization remains to be seen, but it will be slow at best. The association cannot hope to win back

the large concerns that it lost years ago because of attempts to force unfair scales and working rules, but must look to new ones starting up from which to build up its membership. The association officials displayed good judgment when making up the wage scales this year, in that they did not ask for any important advances, and very quickly withdrew the small advances requested when advised in conference that they would not be considered. Any other course would probably have meant a complete disruption of the organization.

A Twenty-five Million Ton Year.

Our monthly statistics of coke and anthracite pig iron production show an output in the first five months of this year of 10,310,525 gross tons. March was the best month, with a total of 2,165,632 tons. Figuring on a 31-day basis for all months there was a decline from March to April of a trifle over 1 per cent., and from April to May of a trifle over 2 per cent. Part of this decline is to be attributed to furnaces not working so well in April and May, on account of well known causes. There were 300 furnaces in blast March 1, a decline of one during March and of three more during April, leaving 296 in blast at the beginning and end of May. There was a change in the identity of furnaces during May, however, some larger furnaces going out and smaller ones coming in. The weekly capacity at the beginning and end of April was about the same, but dropped some 11,000 tons to the beginning of June, which was just slightly in excess of the decreased production of May.

June being a 30-day month, the May rate would give it a production of 2,031,045 tons, and adding this to the production as shown above for the first five months, and allowing for 182,416 tons of charcoal iron, which was the production in the second half of 1905, would give a total of 12,523,986 tons. The odd 23,986 tons represents just a trifle over 1 per cent. of one month's production, and as the June production bids fair to be slightly less than the May production such a discount is fully admissible, so that it can be said that the total pig iron production of the United States in the first half of this year will be very close to 12,500,000 tons. This would be at the rate of 25,000,000 tons for the whole year, against 22,992,380 tons in 1905, 16,497,033 tons in 1903, 18,009,252 tons in 1903 and 17,821,307 tons in 1902.

There has never been a time in the American iron trade when predictions, always uncertain, stood a better chance of verification. Our reports of capacity in blast at the first of the month since December 1 last have shown an extreme variation either way of only half a million tons a year. All through this period practically all the furnaces have been in blast which market conditions would warrant, except for slight halts in anthracite pig production on account of the hiatus in anthracite mining, the chief changes in furnace activity being on account of necessary repairs. The market for pig iron has shown wonderful steadiness. Bessemer pig iron has been practically stationary since the first of the year, basic practically so, and foundry iron almost so, the chief variations being attributable to the fact that at one time the big business had all been done and no large orders were in prospect and at another time the furnaces were inviting large orders. All these influences have co-operated toward the extreme steadiness of production which our monthly figures have actually reported.

The prospects for the second half can hardly be said to indicate the same steadiness. The steel works furnaces have had an excellent campaign, and some will fall by the wayside, for relining and other repairs. The foundry iron market shows somewhat less strength than at previous times in the year, but dealing with so many consumers, in such varied lines of industry, the trade possesses great powers of recuperation, and there are several new merchant furnaces to cater to the foundry iron trade which will be completed during the second half. They will start as soon as physical conditions permit, as the owners of new furnaces always desire to find out at once what they can do, so that the prospects for production, if any distinction is to be made, are better than the prospects for prices. The indications for 25,000,000 tons of pig iron to be produced in 1906 ought, therefore, to be taken with fewer grains of allowance than should usually be prescribed for a prediction made in the month of June. Indeed, it appears to be somewhat rash to venture a mere statement that the balance of probability lies above or below 25,000,000 tons for the year.

Publicity for Machinery Requirements.

It is frequently announced by large buyers of machinery that they do not care to make their requirements public because they will be overwhelmed by letters from prospective bidders. There may be good reason for taking such a stand when it is intended to purchase only a few machines, but even then it must prove advantageous to get in touch with as many manufacturers and dealers as possible. The little additional time and trouble required by the increased correspondence may repay the purchaser many times later on in a wholly unsuspected manner. Some of the large corporations using machinery realize the advantages of wide publicity which can likewise be enjoyed by the smaller buyer. When an extensive list of machine tools is to be purchased it is imperative to send it out broadcast to get the best results in prices, delivery and improvements, especially at this time, when delivery plays such an important part in every transaction. Most of the manufacturers of machinery have their capacities taken for months to come, and these are the larger and more important companies to whom specifications are generally sent. If the circulation of a list be confined to these it is improbable that the tools can be shipped at an early date, while there may be smaller houses that can supply immediate needs, and if the latter get the opportunity to send in bids the very kind of machines required may be obtained when wanted.

While the tendency to make their lists of tools public is growing among the large buyers, there are a few who still adhere to the policy of requesting bids from a limited list, sometimes because of acquaintance, but more often because the purchasing agents do not care to go over so many bids. The latter may be convenient for the purchasing agent, but under the circumstances it is a question as to whether the company he serves secures the benefits due it from the work for which he is paid. Every employee is expected to work in the interest of his employer.

Within the past few weeks a large list of machine tools was sent out to a few dealers and manufacturers by an important railroad company which refused to make it public so that bids could be received from all, giving as its reason that it had as many bidding on the work as it could conveniently take care of. Suppose, and it is reasonable at this time, that those who have received this list are unable to deliver the machines for three or four months, though they are actually needed much sooner. Then the officials of the company referred to prefer to wait, losing time and suffering inconvenience, rather than give the specifications to all, go over the enlarged bids and select what will best fill the require-

ments. Doubtless there are certain machines which are so far superior to others that it is to the best interests to purchase them regardless of price and delivery, but with the general run of tools the reverse is quite as true.

Once having tried the experiment of sending their lists broadcast there is little doubt that those who have not already done so will find it so much to their interest that they will continue the more liberal policy.

The Shop Directory.

The shop directory is a new idea which is being introduced into the highly organized systems of modern manufacturing establishments. In practice it constitutes a not unimportant adjunct to industrial management, much more important than it may seem at first thought. To have the place of residence of every employee ready at hand must often prove a convenience. Occasion may arise when it must mean much more than mere convenience. In case of fire certain men might be needed immediately to furnish necessary information concerning the works. It may be the electrician, whose services are required to do emergency work. A man may not report for work and it may be necessary to communicate with him. In giving out overtime work, men may be picked more judiciously, so that a minimum amount of hardship may result. There are occasions when the addresses of the men permit of using the mails for distributing literature or other mail matter.

The record goes farther than mere residence. Something of the man's history is kept, whether he is married or single, and if he has children, information which is usually sought when it becomes necessary to reduce a working force. It is important to have a record of each man's usefulness as a workman, including the particular line of work at which he is employed and also any other branch of work in which he has had experience. Where no such record exists—and few works have it—information concerning the workmen is frequently sought for various reasons and is gathered piecemeal, generally at the cost of some time and trouble. Occasionally it cannot be obtained. In large establishments, employing many hands, there is no one with even general information concerning all the working force. The superintendent cannot keep track of more than the older employees; his information is usually only that which comes with long contact with his men in the routine of his duties. Each foreman knows his own men pretty well if he has been long enough in his position, but there are always new men of whom no one has much knowledge. When a foreman leaves his successor has to learn the force all over again. It is safe to assume that few foremen, in large or small establishments, could give the house address of a quarter of their men.

The information needed for the shop directory is not difficult to obtain, as blanks distributed for the men to fill out will gather the necessary details, and as new men are employed each can fill out the same blank and its contents be added to the general record. The cost of establishing and maintaining the system is not great. The bane of the industrial establishment is confusion, even small things causing disturbance of the routine of work, and everything that tends to remove causes of confusion assists in the economical conduct of the business.

The dry dock Dewey and its escort are expected at Singapore this week. That port will mark the completion of a half circuit of the globe. Manila Bay is 1435 nautical miles beyond Singapore, and the dry dock is expected to reach its destination in three or four weeks after leaving Straits Settlements.

CORRESPONDENCE.

Electric Smelting in Canada.

To the Editor: An article on page 1898 of your issue of June 14, 1906, on electric smelting in Canada, signed by "C. A. C. J.," would give the impression that the Héroult process is intended to compete with blast furnace practice, when such can be carried on under normal conditions. There is nothing in past or present utterances or reports, either on the part of the inventor, Dr. Héroult, or of impartial and competent investigators, like the Canadian Government Commission, or of Dr. Haanel or of any one else, to justify this. It is not claimed that the Héroult electric ore smelting process is intended to compete with modern blast furnace practice under normal conditions, where fuel and other materials required are easily accessible and obtained under normal conditions. What is claimed is, that there are a number of localities in Canada and the United States where there is an abundance of ore within reasonable distance of cheap water power, for which there is otherwise little demand. In such localities the Héroult process can certainly be worked on a very profitable basis. With a small primitive demonstrating furnace it has been proved, as Dr. Haanel states in his preliminary report and as your correspondent himself admits, that pig iron can be made at $10.69 per ton, being, as he also admits, below the cost of blast furnace production. He adds that this is not as far below the cost of production in blast furnaces as the process "seemed to promise." The concluding words "as the process seemed to promise" are entirely incomprehensible to me, but they may have been whispered into the ear of the blast furnace man solely for his own benefit.

As to the cost of $700,000 for a plant to produce 120 tons daily, requiring 10,000 horse-power, this is misleading. The cost of the furnaces and everything appertaining thereto would be about $100,000, as will be seen from the following figures of a 1500 horse-power electric furnace with a daily capacity of 25 tons:

The Heroult Electric Furnace.—Estimated Cost of a 1500 to 2000 Horse-Power Electric Furnace, &c.

Furnaces, contacts, beams, truck, platform	$3,600
Elevators, bins, sheds	2,100
Hoist and regulator	2,000
Cables	1,500
Transformers	7,250
Instruments	200
Building	1,500
Total	$18,150

Or, in round figures, $20,000.

The balance, according to Dr. Héroult's figures, would be for hydraulic power plant, &c. Suposing that this would cost about $600,000 for 10,000 horse-power, which is certainly ample, a cost of $15 per horse-power, as stated by your correspondent, as the figure calculated on by Dr. Héroult, would amount to $150,000 per annum. This would certainly leave a good profit for the hydraulic plant, on an investment of that character, in localities where water power could otherwise not be profitably employed and where the Héroult process would be hailed as a great blessing by the community, as otherwise the resources in their mines, water power and local labor might remain dormant indefinitely. To judge by his concluding remarks your correspondent infers that the Canadian experiments were to demonstrate the Héroult electric steel making process and that Dr. Haanel's final report would deal with this question. This is also erroneous, inasmuch as the Canadian Government only built an experimental ore smelting furnace and no steel plant. This pig iron furnace, however, is running very successfully right along. The Canadian Commission made a full and favorable report on the Héroult electric steel process after thoroughly investigating the two steel furnaces operated in Sweden and in France. Since then the process has been very much improved and simplified, and steel made in the United States, as well as in Europe, from pig and scrap containing high phosphorus and sulphur has been reduced in phosphorus and sulphur below 0.015. This has already been done to such an extent that we are satisfied with the results. The quality of this steel is equal in every respect to crucible steel. We have practically demon-

strated the pig iron and crucible steel making process under the Héroult patents. We are equally sure of being able to prove the practicability of the Héroult steel mixer, whenever an opportunity is afforded us of erecting one of these mixer furnaces.

The erroneous statements of your correspondent I have no doubt were entirely unintentional. This is a rapid age and we do not know what the next day may bring forth. Electricity has come to stay. It is only in its infancy, and is bound to exert deep influence on all our great industries, the iron and steel industries not excepted. There is no need for prejudice or envy on the part of the blast furnace and converter and open hearth steel men. The field is so vast that there should be room for all. And electricity will assist in further and greater developments of the mineral wealth of the world. I have not touched upon the question of utilizing the waste gases of the blast furnace to produce electricity for the electric ore reducing furnace, although this might develop into an important field, particularly when it is desirable to make an iron low in sulphur.

R. H. WOLFF,
American Representative of Héroult Process.
NEW YORK, June 18.

Wages Scale Settlements.

The Republic Iron & Steel Company.

At a conference in the Frick Annex Building, Pittsburgh, last week between wage committees from the Republic Iron & Steel Company and the Amalgamated Association an agreement was reached on the Amalgamated scale for boiling and finishing mills. The settlement was on the same basis as the one made with the Western Bar Iron Association, and printed on page 1862 of *The Iron Age* of June 7, with the exception of a few changes in the foot notes. Under the terms of the settlement the following was added to the first clause of the Memorandum of Agreement:

Bar mill rolling, heating and catching to be 12 per cent. less than iron prices, and roughing up and roughing down to be 6 per cent. less than iron prices. Guide mill rolling, heating and roughing each to be 9 per cent. less than prices for working iron, except when rolling 1¾-inch solid steel billets or smaller, when clause 3 under guide mill scale will apply.

A new clause, No. 7, was added to the Memorandum of Agreement, reading as follows:

In case of a grievance arising at any mill there shall be no cessation of work by men until same has been investigated through the proper channels and has been finally passed upon by the District Executive Committee of the Amalgamated Association.

Clause 1 of the guide, 10-inch, hoop and cotton tie scale, which reads as follows: "On mills working steel exclusively 2½ per cent. less than above prices for roughing and catching each," was eliminated, as the reduction called for in this clause will not be made in addition to the ones provided for in the Memorandum of Agreement. The concessions made to the Republic Iron & Steel Company will also be granted to the members of the Western Bar Iron Association and all others that sign the Amalgamated scale.

The American Sheet & Tin Plate Company.

An agreement was reached on Saturday between the Amalgamated Association and the American Sheet & Tin Plate Company on the wage scales for sheet and tin plate mills. No changes were made over the present scale in prices, but some important changes were made in the foot notes. These will not be made public until a settlement has been reached with the independent sheet and tin plate mills, the first conference with these mills having been held at the Hotel Lincoln, Pittsburgh, on Tuesday morning, June 19. Owing to the fact that a settlement was quickly reached with the American Sheet & Tin Plate Company, it is expected there will be no trouble in arriving at a settlement of the scale with the independent mills.

The Colorado Fuel & Iron Company's Pacific Coast offices are now located in rooms 268-269 Bacon Block, corner Twelfth and Washington streets, Oakland, Cal.

The Foundry Labor Situation.

Some of the sympathizers of the striking Milwaukee molders recently secured the passage by the Common Council of a resolution favorable to them and urging that the foundrymen withdraw from the stand they had taken. The molders attended the council meeting in large numbers, and the resolution was undoubtedly passed without full consideration of just what it meant. The day following the Metal Trades and Founders' Association issued a formal statement, in which the following appeared:

The indorsement by request of the molders, who appeared before the City Council yesterday in large enough numbers to influence that body, to approve of their strike without knowing the demands, does a very great injustice to the city and the employers. The foundrymen of Milwaukee offered the molders an advance in wages, or shorter hours with same pay. The union molders demanded a written agreement for recognition of the coremakers and a closed shop agreement, and that is the issue. The foundrymen voluntarily increased the wages of all the molders and coremakers in their employ from 5 to 10 per cent. on May 1, and their average wages at that time were about $3 per day. Because of the refusal to sign a written agreement embodying union restrictions they struck on May 2, and have been out since. The foundries are running to-day within about one-third of their normal output with competent nonunion help, and will hereafter maintain strictly open shops free to all men. Only as individuals can the molders return to work.

An injunction was granted at Milwaukee last week by Judge J. V. Quarles, in United States Court, forbidding the Iron Molders' Union and 61 individual members from in any way interfering with the business of the Allis-Chalmers Company. The strikers are enjoined from impeding, hindering, obstructing or interfering with any of the business of the company, and from entering the grounds or premises of the complainant against its wishes. They are enjoined from compelling or attempting to compel or induce by threats or intimidation of any sort, or by fraud or deception or violence any person to leave the employment of the plaintiff company, and also from attempting to persuade the employees of the company to break their contracts and leave the employ of the plaintiff. The order further commands the striking molders to desist from congregating at or near the premises of the company with the purpose to intimidate or obstruct, surround or impede any of the employees of the plaintiff. The defendants furthermore are not to go to the homes of any of the employees for the purpose of persuading them into leaving the Allis-Chalmers Company.

The molders and coremakers of Newark, N. J., made a demand recently for advances in wages, as follows: Floor molders from $2.90 to $3.25, bench molders from $2.65 to $3.25, coremakers from $2.55 to $3. A settlement has been made after various conferences and on July 1 the following schedule of wages will go into effect: Floor molders, $3.25 a day of nine hours; bench molders, $3.10; coremakers, $3.

Attorney-General Robert L. Rogers of Arkansas announced this week that the International Harvester Company had agreed to plead guilty to two violations of the antitrust law of Arkansas. The company inserted in its contracts with agents a clause prohibiting the sale of any goods made by competing firms, a clause in violation of the statute of Arkansas. The fine to be imposed, $200 per day since January 23, 1906, amounts to $10,000 in each case.

It is expected that the Delaware, Lackawanna & Western Railroad will apply to the Board of Estimate in New York City this week for approval of the company's project for a tunnel under the Hudson River. A company was incorporated at Albany in October, 1904, for the building of the tunnel, and steps were taken toward the acquisition of terminal facilities on Manhattan Island. It is evident that the principal railroads now landing passengers at Jersey City or Hoboken will dispense eventually with ferries. Whether there will be such co-operation as will permit of the use of one tunnel by two roads remains to be seen.

The Japanese Iron and Steel Market.

WASHINGTON, D. C., June 15, 1906.—The Secretary of Commerce and Labor has transmitted to Congress a detailed report on trade conditions in Japan, with particular reference to the commerce of that empire with the United States, prepared by Special Agent Raymond F. Crist, who has spent the past year in the Orient studying the opportunities for American manufacturers and exporters in eastern markets. An interesting chapter of Mr. Crist's report is devoted to the recent development of the iron and steel industry of Japan, which has made notable progress since the beginning of the Russo-Japanese war, and to the market in the empire for American iron and steel manufactures. Following is an abstract of the report:

Japan's Industrial Policy.

The evident aim of the Government is to place Japanese manufactures on an independent footing. That this object has long been entertained is shown by the persistent effort made during the reign of the present Emperor to develop the manufactures which now flourish throughout the empire. The manufacture of almost every commodity now made in Japan was begun under Government supervision and expense.

This renaissance of Japanese manufacturing has had a correspondingly powerful influence both upon the quantity and character of the imports of the empire. Great changes were observable in the kinds of articles demanded during the past fifteen years. Goods that were essential to the well being of the natives in 1890 and were among its leading imports are no longer purchased abroad, but instead are manufactured in such quantities that the surplus is exported to other parts of the world, and in many instances to the countries from which they were previously purchased. Thus, instead of occupying the position of a buyer of her necessaries from other countries, Japan has entered the ranks as a competitor for a share in the world's markets.

Iron and Steel.

The Shibaura Engineering Works of Tokyo is a fair example of the highest attainment of Japanese mechanical engineering. At present it employs 800 skilled operatives and laborers. The capacity of the plant is being increased so as to call for 1500 employees. The business promise of the future is so bright that the improvements referred to are being pushed as rapidly as possible. In the equipment of these works there has been an almost equal selection of American and English machines, the matter of expense not being the controlling influence, but the highest developed types of engineering skill being sought. The entire management of these works is Japanese, as is the management of all of the largest and best established factories, mills, and industrial establishments.

To this company belongs the distinction of having constructed the largest steam engine yet built by Japanese engineers. This engine was constructed for the Kanegafuchi Cotton Mills shortly after the close of the Chino-Japanese war, and is now in successful operation. It is a combination of the Musgrave-Hicks type of English engine, is triple expansion and develops 1300 horse-power. The power is conveyed to the machinery of the mills by 32 cables running over the fly wheel, which has a 9-foot face. This size of engine is exceedingly unusual in Japanese construction, the highest general average being in the neighborhood of 100 horse-power for steam engines. It is the practice among Japanese builders of both stationary and marine steam engines to import the various parts from abroad, Europe supplying these necessaries for the most part, and upon receipt of the plates, tubes and other materials to construct the engines in the native works.

Electrical Machinery.

In the construction of electrical machinery the metal collars and bases for dynamos and motors are cast by this company, while the materials for the construction of commutators and armatures are obtained mostly in America, as are the parts entering into the construction of the large storage battery output. Electrical cranes are among the products of this company, cranes of 20 and 30 tons capacity having been constructed for various foundries and for the imperial navy yards.

Another article quite extensively manufactured by the engineering works of Japan is the "earthquake chimney." It is constructed of rolled steel plates, riveted together. Tall factory chimneys of masonry are prohibited because of the seismic disturbances peculiar to Japan. With the growth of manufactures there has been a great demand for steel chimneys, and a consequent large importation of plates for this purpose.

The wire nail, steel rail, armor plate and many other steel industries are the outgrowth either directly or indirectly of Government pioneering.

The running expenses of the Government steel works on Kiushu Island are annually appropriated for by the Imperial Diet, and up to the present about $10,000,000 has been paid out in the development of the production of the various articles of steel necessary in manufacturing. Steel in billets and other forms is turned out at these works and is supplying the raw material in the manufacture of wire nails, which heretofore it was impossible to produce because of the prohibitive price of the materials. Armor plate for the ships of the Japanese navy and steel rails of a high standard are also being produced at this great Government steel works.

For many years Japan will be a good market for iron and steel products, especially for pig iron, steel billets, plates and sheets, rods, bars, tubes and pipes, and other raw or partially manufactured iron products. There is no great native supply of iron. The following five-year periods show the average importation of these items:

Article.	1896-1900.	1901-1905.
Pig and ingot iron	$2,490,000	$5,850,000
Plates and sheets	1,500,000	2,690,000
Bars and rods	1,735,000	2,200,000
Pipes and tubes	700,000	760,000

Position of the United States.

Under the class of "Machinery, metals and metal manufactures," Japan imported in 1904 $24,319,800 and in 1905 $44,259,200. The principal items of these imports in which the United States leads are electric light apparatus, instruments and motors; paper making machinery, turning lathes, sewing machines, steel rails and fittings, iron pipes and tubes, lead jigs, ingots and slabs.

In nails the United States and Germany divided the bulk of the purchases in 1904, the share of the former being $420,300 and of the latter $486,300, out of a total of $980,000. This is a remarkable increase in the sales from America, which have doubled in the past three years, while the sale of German nails has declined slightly. As the use of nails is increasing throughout the Empire, there should be a good market for many years to come. The use of electric light wire is also annually increasing, but in its importation English manufacturers have profited most, their sales being fourfold greater than in 1902, while American sales have fallen off more than 8 per cent. during that time.

There has been a rapid increase in the popularity of American metals and metal manufactures and machinery during recent years. While in some instances the preference is still for similar products of other countries, there is a striking change in the relation of American manufactures from their relative standing of former years.

Agricultural Implements.

Farm implements of a limited kind and size are finding an increasing market in Japan. At present in the Government Agricultural College on Hokkaido and at the various agricultural experiment stations located throughout the Empire, modern American agricultural implements are to be seen in active operation. The establishment of Government experiment stations and model farms in Korea, together with the growing of cotton there, and the opening up of Manchuria, will greatly increase the demand for farming implements in the Orient. With the increased commercial activity of the Japanese in these fields it is to be expected that much of such supplies will be furnished through the medium of Japanese importers. Branches and agencies are being established at the principal centers in Korea and Manchuria by Japanese commercial houses for trade with these northern markets.

W. L. C.

Our Trade with the Philippines.

WASHINGTON, D. C., June 19, 1906.—An interesting summary of the trade of the Philippine Islands with the United States and the leading countries of Europe during the five calendar years ending December 31, 1905, has been prepared by the Bureau of Insular Affairs of the War Department. A leading feature of the exhibit is a detailed statement of the imports of iron and steel and metal manufactures, in the supply of which the United States has taken the lead over Great Britain, Germany holding third position. Through the courtesy of the War Department the correspondent of *The Iron Age* is enabled to present the following advance abstract of this summary:

The two most noteworthy features of the commercial returns of the Philippines for 1905 are a balance of trade in favor of the islands for the first calendar year period in the history of American occupation, and the advance of American goods to first rank in the import trade. This latter fact, taken in conjunction with leadership in the export trade from 1902, completes the commercial ascendency of the United States in its Oriental possessions. The favorable trade balance for the year is due to increased export values; in fact, the export total of $33,454,774 exceeds by more than $4,000,000 that of the depressed condition of 1904, and exceeds by over $1,000,000 the previous maximum figures of 1903.

United States in the Lead.

The position of leadership taken by the United States in the import trade of the Philippines in 1905 is the result of notably steady gains from the beginning of American occupation—both in absolute values and in the percentage of total imports. In a total trade that has risen from $19,000,000 to nearly $34,000,000 during United States control the Philippine imports have increased yearly in value with but a single slight break in 1903, when the volume of rice imports most seriously affected the volume of all other imports. By virtue of a very regular annual trade of about $5,000,000 the United Kingdom has been a leading figure in imports, and the conspicuous part played by the French East Indies in the heavy rice trade of 1903 and 1904 gave that country the most prominent place in the total imports of the islands during those years; but an increase of $500,000 in American trade in 1905, combined with a decline in rice imports, gives to the United States the lead, and in view of the anticipated further decline in demands for foreign rice in the islands it would seem that the maintenance and strengthening of this foremost place will rest with the continued aggressive methods of the American exporter in his encroachments upon the British exporter's strong position in the cotton trade, and in his active competition in the growing imports of iron and steel.

Reviewing imports from the United States for the past five years more in detail, it appears that in a $2,000,000 increase in trade the great bulk is made up of imports of iron and steel and their manufactures, of cotton and manufactures, and of illuminating oil.

In the iron and steel trade totals during the past five years the most conspicuous feature is an increase of $500,000 in 1905, when the trade approximated $3,000,000 in value. The United States and the United Kingdom have been the leading factors throughout, with Germany in the third rank, credited with a trade of $500,000 in 1903, but which has declined to $300,000 in succeeding years. In 1903 the United Kingdom still held the first place in the iron and steel trade as a whole, but in the two past years the United States has taken the lead, and though in the increased total of 1905 British gains have exceeded American, the totals stand $1,284,509 to $1,068,509 in favor of the United States.

Imports of Machinery.

The leading subdivision of iron and steel imports is made up of machinery, and the strength of the American iron and steel trade is found under this head, which in 1905 represents half. Of machinery imports the United States is credited with more than two-thirds of the latest returns, with British and German machinery the conspicuous elements in the remainder. In the past five years this class of imports has steadily increased from $500,000 to $900,000, while the American trade has more than trebled. In the conspicuous increase in American machinery in 1905 electrical machinery is the leading feature, representing an exceptionally large value of nearly $250,000 in a trade that has virtually been American throughout.

Structural Iron and Steel.

Among other manufactures of iron and steel, imports of structural materials have shown a rapid increase in recent years, amounting to $169,476 in 1905. Not until 1904 did the United States figure especially in this trade, the United Kingdom contributing the greater part previously; but in the figures of 1905 American structural iron and steel exceed the British and constitute more than half of the largely increased total. Imports of wire and wire cables, though of less value, follow the same general lines of increase shown in structural materials, with the United States credited with two-thirds of the $37,000 trade in 1905.

Tool imports are not characterized by uniformity, but represent an average value of about $100,000 annually. In 1901 and 1902 British and German tools shared the lead, but in 1903 the American trade was greater than either, and in the two past years exceeded half the total.

The agricultural implement trade of 1905 amounted to $90,000, of which the leading items of separate mention are plows and cultivators to the value of $22,000. American credits make up $78,926 of this import total, and the proportion is even greater in the smaller trade of the previous year.

In the nail trade of the islands, approximating $60,000 annually, the United Kingdom and Germany are also active participants, but the lead has been maintained during the past two years by the United States, with shipments valued at about $25,000, while in imports of pipes and fittings, amounting to $75,000 in 1905, American trade represents far the greater part, as it does in previous years.

Iron sheets and plates reached import values of $300,000 in 1905, of which the United Kingdom is credited with $290,000, and this virtual monopoly prevailed throughout the quinquennial period. Steel sheets and plates show somewhat irregular annual totals, but of the $20,000 value of 1905 the United Kingdom furnished more than half. The bar iron imports, ranging from $60,000 to $70,000 annually, were throughout the five years considerably more than half of British origin, with Belgium the only other contributor of note. In bar steel imports, which show a sharp decline in 1905 to $31,108, the British supply, while not representing half the total, as it did previous to 1904, is still of leading importance, with French steel in the second rank. W. L. C.

The Best Artificial Drying System.—Generally speaking, there are five different systems or processes of artificial drying—namely, the desiccation system, the direct heat system, the vacuum system, the air current system and the superheated steam system—according to George Wetmore Colles in a recent issue of the *Stevens Institute Indicator*. After showing that the great defect in the first three methods lies in the fact that no effort is made to remove the generated vapor mechanically, he states that "the most practical and the most universal of all drying systems in use are founded on the fourth above mentioned—namely, the air current system. Notwithstanding the fact that it is often necessary in drying by this system to impart to a vast volume of air heat which is in part thereafter lost and dissipated, it is usually more economical than either the direct heat or vacuum system, because of the great mechanical (rather than thermic) advantages which it offers in accomplishing its object. These advantages are twofold, and consist, on the one hand, in the great facility with which the heat can be conveyed to the wet material through the medium of air, and on the other in providing a ready means for conveying away by mechanical force, as it were, the generated vapor which in default of such force hangs around and incloses the particles of wet material, thus preventing a rapid evaporation."

PERSONAL.

John M. Reese, superintendent of the blast furnaces of the Pennsylvania Steel Company at Steelton, Pa., for several years, has resigned to accept the managership of the blast furnace at Pulaski, Va., owned by the Pulaski Iron Company.

Dr. Schuyler Skaats Wheeler, president of the Crocker-Wheeler Company, Ampere, N. J., sailed June 14 for a short European trip. He was accompanied by Prof. Francis B. Crocker, professor of electrical engineering at Columbia University, who has been associated with him in business for many years.

J. W. Shook, for the past five years superintendent of the Ensley Furnaces of the Tennessee Coal, Iron & Railroad Company, has been elected general manager of the Central Iron & Coal Company, Tuscaloosa, Ala. He assumes the duties heretofore performed by Joseph Lodge, who recently resigned as president of the Central Company.

P. M. Caldwell, heretofore in charge of Oxmoor Furnaces, Oxmoor, Ala., has been appointed superintendent of the Ensley Furnaces of the Tennessee Coal, Iron & Railroad Company, succeeding J. W. Shook, resigned.

T. J. Best, well known among foundrymen of the United States, having been Canadian vice-president of the American Foundrymen's Association for a number of years, acquired some time ago a half interest in the malleable and steel foundry of the National Tool & Axe Works, Three Rivers, Quebec. Mr. Best had been connected for many years with Warden King & Son, Limited, Montreal, as foundry superintendent.

Patrick McManus, superintendent for several years of the Sharon Foundry Company's steel castings works at Wheatland, Pa., has resigned, effective July 1. He has several new connections in view, but has not yet made a decision regarding them.

George I. Rockwood, Worcester, Mass., has been appointed head of the department of steam engineering of the Worcester Polytechnic Institute. Mr. Rockwood is an alumnus of the institute, graduating in the class of 1888, and is a well known member of the American Society of Mechanical Engineers. He has made a specialty of steam engineering and has designed and installed a number of important power plants. He will devote only a portion of his time to his new duties.

The number of directors of the Iroquois Iron Company, Chicago, has been increased from five to seven, the new members being E. L. Billingslea and D. B. Meacham, both of whom are affiliated with Rogers, Brown & Co.

Samuel W. Traylor, president of the Traylor Engineering Company, has just returned to New York after an extended business trip to Mexico. One of the most important results of Mr. Traylor's trip was the conclusion of negotiations by which the firm of Victor M. Braschi & Co., of the City of Mexico, have taken an exclusive agency for the products of the Traylor Engineering Company in Mexico.

The Technical University of Berlin has conferred on George Westinghouse the degree of Doctor of Engineering.

The honorary degree of Doctor of Engineering has been conferred by Stevens Institute of Hoboken, N. J., upon John Hays Hammond, the well-known mining engineer, and upon James E. Denton and D. S. Jacobus, both connected for many years with the Stevens faculty.

Union College of Syracuse, N. Y., has just conferred upon C. J. Woodbury the honorary degree of Doctor of Sciences. Mr. Woodbury, who was long associated with the late Edward Atkinson in his work for the Manufacturers' Mutual Fire Insurance Company, and has been secretary of the Cotton Manufacturers' Association, is now engineer of the American Telephone & Telegraph Company of Boston.

Albert Sauveur of Boston is spending the summer in Europe.

Robert Geddis, sales manager of the Jones & Laughlin Steel Company, Pittsburgh, has returned to that city after spending four or five weeks in San Francisco in the interests of his company.

William R. Work has been appointed an instructor in the department of electrical practice at the Carnegie Technical Schools, Pittsburgh. He was formerly connected with the Westinghouse Electric & Mfg. Company.

William A. Bole, vice-president of the Westinghouse Machine Company, has gone abroad on a tour of observation of the principal foundries in England, Germany and Switzerland. On his return in August, he will take up the work of largely extending the Westinghouse foundry plant at Trafford City, Pa.

Samuel W. Vaughen, who has been superintendent of the Lorain, Ohio, blast furnaces of the National Tube Company for several years, has resigned.

New Publications.

Copper Manual. D. Houston & Co., 22 Platt street, New York City. Size, 4½ x 7½ inches; pages, 164. Bound in cloth. Price, $1.25.

The manual this year is issued in a condensed form, but follows the general line of the well-known copper manual published for the last four years by D. Houston & Co. Information regarding the financial standing of the officers of the various copper companies is given in tabulated form. A portion of the book is devoted to statistics showing the production of copper by districts and exports and imports of the metal by periods and by countries. Tabulated information as to the consumption and production in foreign countries as well as prices of the metal in those countries is also given. The collection of these statistics regarding various copper producers in this country and the principal foreign sources of supply is thus presented in a form which should be attractive to those interested in the metal.

We have received Volume XXVI, 1905, of the Transactions of the American Society of Mechanical Engineers. This volume covers the proceedings of the fiftieth meeting, New York, 1904, and the fifty-first meeting, Scranton, Pa., 1905. The work comprises 841 pages, presenting all the papers read at these meetings, together with the discussions thereon.

Premelting Additions to the Open Hearth Bath.

The Carnegie Steel Company has recently acquired two patents issued to William B. Hughes, formerly of Philadelphia and now with the Wellman-Seaver-Morgan Company, Cleveland, covering improvements in open hearth steel practice. The procedure consists in premelting, outside of the open hearth furnace, oxide of iron and mixing it with lime to form a highly oxidizing basic slag, the molten slag being added to the bath of molten iron on the hearth of the furnace. It is claimed that the improvement permits of working furnaces at their maximum capacity, renders unnecessary the use of very large furnaces, and saves the time heretofore required for heating the basic additions when charged cold on the hearth of the furnaces. The addition of the molten basic slag to the bath removes silicon and phosphorus from the iron without risk of injury to the hearth or lining, such as may result when the ore and lime are melted in the furnace. It is also stated that the molten slag acts more uniformly than if its constituents were charged into the furnace cold, and in the subsequent reaction and discharge of slag the loss of uncombined oxide, which is sometimes carried off mechanically, is prevented.

The Pennsylvania Steel Company is preparing to make extensive improvements to its plant at Steelton, Pa., which will greatly increase the capacity. The open hearth department is to be increased by the installation of five additional open hearth furnaces of 75 tons capacity each.

Trade Publications.

Electrical Equipment.—General Electric Company, Schenectady, N. Y. Bulletins and flyers. Bulletin No. 4434 pertains to the G. E. M. high efficiency high candle-power incandescent units. No. 4436 contains illustrations, descriptions and price-lists of direct and alternating current, automatic, carbon break circuit breakers, type C, form G. Bulletin No. 4437 gives a full description of the General Electric straight air brake equipments. Flyer No. 2176 shows a variety of forms of Universal sockets, shades and portable fixtures for incandescent lamps. Flyer No. 2177 concerns multiplex lightning arresters, shunt resistance multigap type. General catalogue No. 1051 is the 1906 addition of the company's fan motor catalogue.

Pumping Engines and Condensers.—Heisler Mfg. Company, St. Marys, Ohio. Bulletins. The company has standardized its trade literature and distributes it in bulletin form with a binder for permanently filing. The bulletins already issued include the following: No. 4, pertaining to the Heisler vertical, compensating, high duty, triple expansion pumping engine; No. 5, to power pumps; No. 6, to barometric condensers; No. 7, to massive direct acting "Bull Dog type" boiler feed and pressure pumps; No. 9, to Heisler compound fly wheel type of Corliss pumping engines; No. 12, to air and ammonia compressors, and catalogue No. 3 covers the general subject of modern pumping machinery.

Grinding Machines.—Gardner Machine Company, Beloit, Wis. Supplementary sheets for loose leaf catalogue, pages 9 to 14. Show the use of disk grinders for finishing duplicate small parts and the improved double head disk grinder No. 14 (illustrated in *The Iron Age*, March 29, 1906), a description of the latter machine, and an illustration of it used in the finishing of small parts. A price-list of disk grinder supplies is appended. Bulletin A-4-14, on the subject, "Opening a New Field," has for its object the spreading of knowledge as to what may be done in the way of rapid surfacing of small machine parts and castings with the use of disk grinders.

Electric Hoists. — Wellman-Seaver-Morgan Company, Cleveland, Ohio. Catalogue. Size, 6 x 9 inches; pages, 36. Refers to a line of standard and special electric hoists built at the Webster, Camp & Lane division of the company, at Akron, Ohio. The hoists are mostly of the self contained form, except in the larger sizes. A variety of types and sizes is shown. The company has built hoists up to 800 horse-power. A notable special electrically operated water hoist illustrated is the one at the Hampton mines of the Delaware, Lackawanna & Western Railroad, near Scranton, Pa. This hoist was described in *The Iron Age*, November 30, 1905.

Drill Presses.—Henry & Wright Mfg. Company, 111 Sheldon street, Hartford, Conn. Catalogue. Devoted to ball bearing drill presses and filing machines. The fact emphasized in connection with the sensitive drills is that their capacity is far in excess of that usually obtained from similar machines. The presses contain a number of new features, which are dwelt upon at some length. A general description of the machines is followed by illustrations of the various sizes made, with statements concerning the dimensions. They range from single to six-spindle patterns. Diagrams are used in explaining the construction and use of the idler system as supplied on the ball bearing drill presses. The last few pages concern the Hartford bench filing machine, which is used by makers of dies, tools, models, gauges, templates, jewelry, dental and surgical instruments.

Bridge Riveters.—General Pneumatic Tool Company, Montour Falls, N. Y. Mailing card. Shows five different forms of Shepard bridge riveters, including column, stationary, portable, lever and combined stationary and portable riveters.

Packings.—Charleston Metallic Packing Company, Charleston, S. C. Catalogue B. Size, 5 x 8 inches; pages, 62. A comprehensive catalogue and price-list of high grade steam, ammonia and hydraulic packings. Attention is called to the fact that no one packing is good for all kinds of service and that the peculiar conditions of each class must be taken into consideration in selecting a packing. This company has reduced the number of styles to as small a number as seemed consistent with the requirements. The catalogue illustrates the different styles made and explains the utility of each. A complete index at the rear facilitates the location of any style that the user may be seeking.

Gas Producers.—Wile Power Gas Company, Cutler Building, Rochester, N. Y. Three catalogues and circular. Catalogue A, section I, deals with producer gas, its uses and cost; catalogue A, section III, with suction gas producers for cheap power, and catalogue B with gas producers for cheap power and cheap fuel and gas furnaces. All of the catalogues are largely in the nature of treatises on their subjects. The last mentioned has a considerable discussion of automatic gas producers and suction gas producers, the latter being of course intended for use where power alone is wanted; their advantages are enumerated at some length. The circular contains a reprint of an article from *Power*, entitled "Gas Producers for Power," written by Julius I. Wile.

Conveyors.—Robins Conveying Belt Company, Park Row Building, New York. A series of single sheets, Nos. 1 to 9, inclusive. Contain illustrations of typical installations of conveyor plants with short descriptions, and show contractors' conveyors for handling earth, rock and concrete ingredients; automatic self reversing trippers for distributing coal, cement, refuse, &c., into bins, pockets and open storage; tailing stackers; coal conveyors; picking belt conveyors, hoisting towers and belt conveyors in retail coal pockets.

Milling Machines.—Garvin Machine Company, Spring and Varick streets, New York City. Pamphlet. This being styled a "Reminder of the Garvin Product" makes no attempt to go into extended information, but simply shows a number of views of machines and attachments with brief statements as to what they are. The machines shown include universal milling machines, plain manufacturing, arm, vertical, duplex, hand, profile and adjustable rail milling machines, cutter grinding machines, surface grinder or die grinder, die slotter, screw machines, monitor or chucking lathes, horizontal screw slotter, automatic tapping machines, horizontal tapping machines, hand lathes, gang drill presses, duplex drill lathes, spring coiling machines, milling machine attachments, multiple index centers, straight line milling machine vises, high speed automatic die holder, screw machine attachments, roughing and finishing box tools, and a rotary oil pump.

Graphite Paint.—Detroit Graphite Mfg. Company, Detroit, Mich. Pamphlet. Refers especially to the company's Superior graphite paint for protecting structural steel and bridges to prevent rust. The booklet tells something about the dangers of rust and how to avoid them.

Engineering.—Dodge & Day, Drexel Building, Philadelphia, Pa. Pamphlet No. 14. One of a series covering recent work and contains a description of the new factory built for the Wm. Knabe & Co.'s piano factory, which was designed, erected and equipped entirely under the direction of Dodge & Day.

Coal Handling Machinery.—C. W. Hunt Company, West New Brighton, Staten Island, N. Y. Catalogue 063. Size, 6½ x 9¼ inches; pages, 60. Contains a collection of information and views of interest bearing on one of the company's specialties, coal handling machinery for power stations, boiler rooms, coaling stations, gas companies, coal yards, shipping docks, factories, &c. Steeple towers with folding boom and parabolic boom towers for handling steam shovels are examples of the more advanced method of handling coal from boats to store yards, but the cruder mast and gaff arrangement are also shown. In logical sequence the machinery necessary in handling coal from the dock or cars to where it is used is taken up, beginning with the shovel and including coal crackers, cable railroads, automatic railroads, trolleys, steam and electric hoisting engines, boiler room cars, self dumping cars, scales and weighing hoppers, coal valves, &c. Another section of the catalogue deals with special parts of the equipment, such as various forms of chutes, screens, hoisting blocks, rope, blocks, sheaves, chains, &c. The latter part of the catalogue deals with industrial railroad, briefly referring to the parts entering into equipment of various characters.

Radiators.—Shirley Radiator & Foundry Company, Shirley, Ind. 1906 catalogue. Covers a complete line of plain and ornamental radiators for steam and water, with lists of sizes carried in stock.

Silica, Magnesia and Chrome Brick.—Federal Refractories Company, Cleveland, Ohio. Catalogue. Size, 4 x 7 inches, leather binding. Refers to the company's new plant for the manufacture of silica, magnesia and chrome brick, located at Alexandria, Pa., in the heart of the ganister field, where the finest quality of ganister, necessary to the manufacture of high grade silica brick, is obtained. The catalogue lists the shapes of silica, magnesia and chrome brick which are regularly carried in stock and calls attention to the fact that the company is prepared to make any special shape to order. Calcined magnesite is furnished in sacks, prepared for making bottoms in basic open hearth steel furnaces and also for repairing them. Magnesia brick is manufactured for use in basic open hearth steel furnaces, copper furnaces and chemical works. Chrome ore, another product, is useful in repairing the slag line of basic open hearth furnaces and for many other metallurgical purposes. Chrome bricks are largely used in copper smelting works and for the sides of the lower portion of soaking pits. The booklet gives information with respect to the uses to which the various refractories manufactured are especially adapted in metallurgical work. Other information useful to those to whom the catalogue is addressed is appended.

Die Stocks.—Curtis & Curtis Company, 100 Garden street, Bridgeport, Conn. Pamphlet. With reference to illustrations it describes the operation of the Forbes patent die stock for hand power and also those intended for driving by belt. Pipe mills, pipe threading attachments for lathes and various pipe tools are also listed.

Steel Plates.—The Worth Brothers' Company, Coatesville, Pa. A set of three post cards, one giving a bird's eye view of the company's various plants; another a front view of the 152-inch plate train, the largest in America, and the third a rear view of the same train, showing the straightening rolls, tables and the 154-inch guillotine shears, also the largest in America.

NEWS OF THE WORKS.

Iron and Steel.

The Columbus Iron & Steel Company, Columbus, Ohio, blew out its No. 2 furnace June 16 for relining. The furnace is expected to be in blast again by August 1.

There have been numerous reports in the daily press to the effect that the Ludlum Steel & Spring Company, Pompton, N. J., intends to erect a large plant at Troy, N. Y., where it recently purchased 33½ acres of land. About six months ago the company was annoyed by the attempt of the Borough Council to interfere with its use of the public highway with traction engines and trailers in the transportation of its freight. The company deemed it advisable to own another building site, and finally selected the property at Troy. The traction engine lawsuit has been fought out, the company winning, and it cannot now be interfered with in the handling of its freight.

The creditors of the Diamond State Steel Company, Wilmington, Del., have been granted permission by the court to sell the plant, which has been in the hands of the receivers for some time.

Work is being rushed on the Refined Iron & Steel Company's new iron mill at Anderson Road, 16 miles from Pittsburgh, on the Pittsburgh & Lake Erie Railroad. When completed the new plant will consist of 10 double puddling furnaces, 10 vertical boilers of the Wood pattern, a 22-inch puddle mill and 16, 12 and 9 inch finishing trains. The mill will have a daily capacity of about 60 tons. J. C. DeNoon is president.

C. A. Ford of Kokomo, Ind., receiver for the Indiana Tin Plate Mills at Atlanta, has sold the plant to a company of Indianapolis and Atlanta capitalists for $60,000.

The Reading Iron Company has begun repairs to its Keystone Furnace, at Reading, Pa., which was recently blown out after a campaign of two years. It will be started as soon as repairs are finished.

The American Aluminum Coating Company has leased the plant of the Steel & Iron Aluminum Coating Company at South Connellsville, Pa., which has been idle for two years or more, and expects to start the plant this month. The product will consist of iron and steel sheets, pipe and fittings coated with pure aluminum. George W. Delamater of Pittsburgh and George J. Humbert are actively connected with the new company.

General Machinery.

The Traylor Engineering Company, New York, has recently received orders for two copper blast furnaces from clients in the Northwest. The size of these furnaces is 46 x 255 inches. They are to be equipped with the Giroux hot blast top, which utilizes heat usually lost in ordinary practice. The use of this equipment reduces the coke charge from 3 to 6 per cent., according to the amount of sulphur in the ore. The company has orders for two other furnaces for British Columbia, two furnaces for a Mexican company, and another for a New Jersey copper refinery. The company reports its works so completely flooded with orders that they are running night and day. The foundry department is particularly crowded, turning out from 30 to 40 tons of castings daily. As soon as the new addition to the foundry is completed it will have a capacity of 75 tons of castings daily. The addition is expected to be in operation on or before August 15.

The Hyatt Roller Bearing Company, Harrison, N. J., has just broken ground for a three-story addition, 75 x 100 feet, to be erected adjoining its present machine shop. Although it is less than two years ago that the company added an addition, 75 x 150 feet, two stories high, it has already outgrown the present facilities. The increased business is due to the increased sale of not only standard shafting bearings but also of automobile bearings. Improved methods in the manufacture and finishing of the bearing has made necessary the design of a large variety of special machines and fixtures, and it is to make room for this large volume of improved machinery that this new addition is required. It is proposed in the future to grind all parts of the Hyatt bearings, and special machinery which will make possible the automatic and accurate finish of these bearings is being built. Because of the exceptionally novel and new lines on which these machines were built, a number of patents have been obtained. The improvements are largely due to the ingenuity and efforts of the company's works manager, Alfred P. Sloan, Jr., and its chief designer, C. I. Shirley. The new building will be ready for occupancy August 1, and by that time the company's output will be increased at least 50 per cent.

The Titusville Forge Company, Titusville, Pa., is finishing erecting its new machine shop, which is a structural steel building 80 x 180 feet. Installation will consist of a 20-ton electric crane and a complete set of new machine tools. The machinery in the new shop will be put in operation in about a month.

The B. F. Sturtevant Company, Boston, Mass., recently secured a large number of orders for its apparatus, including Terminal Warehouse & Cartage Company, Montreal, Quebec, hot blast heating system; Dennison Mfg. Company, South Framington, Mass., hot blast heating and ventilating system; Elyria Pumping Station, Elyria, Ohio; Tentern Manor Water Company, Long Branch, N. J.; Canadian Fairbanks Company, Toronto, Ont.; Henry Steers, New York—generating sets with inclosed forced lubricating engines. Orford Copper Company, Bayonne, N. J.; Firth-Stirling Steel Company, Giesboro, D. C.; Consolidated Railway Company, New Haven, Conn., and several other plants, economizers. Dean Hardware Company, Portland, Ark.; Vulcan Detinning Company, Seawarren, N. J., and a number of companies both in the East and West, vertical inclosed forced lubricating engines. Oliver Typewriter Company, Woodstock, Ill., heating and ventilating system. New shops of the Missouri, Kansas & Texas Railroad, Parsons, Kan., heating and ventilating system. Yenei-Shoten, Tokio, Japan, forced draft system for boilers. The company is installing a large amount of heating and ventilating apparatus in various high school buildings and hotels.

The F. J. Stokes Machine Company, Philadelphia, Pa., has completed plans for a new brick machine shop, 45 x 100 feet, and a two-story office building, 16 x 45 feet.

The Detroit & Toledo Shore Line Railroad, Detroit, Mich., has started work on a new machine shop and eight-stall roundhouse at Toledo, Ohio, to cost $30,000.

The Harrisburg Foundry & Machine Works, Harrisburg, Pa., will enlarge its machine shop and make an addition to its office to handle increasing business.

An addition, 20 x 50 feet, will be made to the machine shop of the plant of William Jessop & Sons Company, at Washington, Pa. The details are being attended to from the Washington office.

Power Plant Equipment.

The C. & G. Cooper Company, Mount Vernon, Ohio, has been awarded contracts by the Carnegie Steel Company for three tandem compound condensing rolling mill engines. Two 32 x 52 x 60 inch engines will be installed at the Homestead works, for driving direct connected roughing and finishing mills. One 42 x 74 x 60 inch will be installed at the Duquesne steel works.

The De La Vergne Machine Company, New York, reports the following recent sales of its Hornsby-Akroyd crude and fuel oil engines: Fulton Bag & Cotton Mills, Atlanta, Ga., 50 horsepower; F. P. Pfleghar & Son, New Haven, Conn., 125 horsepower; Wissahickon Electric Company, Fort Washington, Pa., 50 horse-power; Iola-Aurora Production Company, Iola, Kan., 20 horse-power; Marconi Wireless Telegraph Company of America, New York, 7 horse-power.

The Common Council of Milwaukee, Wis., has passed an ordinance providing for a special bond issue of $150,000 for the erection of a municipal light plant, and has also purchased a site at a cost of $60,000.

The plant of the National Water Tube Boiler Company at New Brunswick, N. J., including patents, good will, &c., has been purchased by the New Brunswick Refrigerating Company of that city for $60,000 cash. It is the intention of the purchaser to take up the manufacture of water tube boilers under the patents of the National company on an extensive scale. The New Brunswick Refrigerating Company was reorganized on January 1 with a capital stock of $2,000,000.

The City Council of Richmond, Ind., contemplates making improvements costing $35,000 to the municipal electric light plant.

The Shelbyville Foundry & Machine Company, Shelbyville, Ind., will spend $30,000 in an addition to its plant for the manufacture of gas engines.

The Windmill Electric Company has been incorporated at Noblesville, Ind., with $20,000 capital stock to manufacture electric, wind and other power machinery. The directors are C. C. Curtis, Fred. E. Heylman and J. C. Jones.

The Riverside Engine Company, Oil City, Pa., has completed a large pumping station at Roulette for the Bradford Gas Company, which is said to be one of the most modern plants of its kind. The gas engine is direct coupled to compressors and is of the twin tandem double action type.

The E. Keeler Company, manufacturer of boilers, Williamsport, Pa., whose sheet iron and erecting shops were destroyed by fire early in March, rebuilt them in four months on a larger scale, working right along without interruption.

The Crocker-Wheeler Company, Ampere, N. J., has recently received an order from the William Cramp & Sons Ship & Engine Building Company, Philadelphia, Pa., for eight 5½-kw. motor generators, and Columbia University, New York, for one 450-kw. direct current generator for lighting and power.

Houtzdale, Pa., people have organized an electric company with a capital of $10,000, under the name of the Houtzdale Electric Light, Heat & Power Company. Samuel T. Henderson, Houtzdale, is the treasurer.

Foundries.

The West Latrobe Foundry & Machine Company, Latrobe, Pa., whose plant was burned last week, advises us that it intends to rebuild at once, but on a larger scale. The company will need considerable foundry equipment.

The National Malleable Castings Company, Sharon, Pa., turned out in May 29,300 couplers, the best record for this plant

in any one month. The company intends to make material enlargements to its foundry.

The A. J. Lindemann & Hoverson Company, Milwaukee, Wis., is adding a malleable iron plant, including a 10-ton furnace for melting and the necessary annealing ovens and other equipment. This will enable the company to produce a sufficient quantity of malleable iron for all its uses.

The Solvay Foundry Company, Syracuse, N. Y., has been incorporated with a capital of $100,000, and Ogden P. Letchworth of Buffalo and Frederick Frazer, C. R. Jones, H. S. Holden and W. W. Wiard of Syracuse as directors. The company has purchased a large tract of land at Solvay, near Syracuse, and is receiving bids for a large foundry which will cost about $100,000 and will be devoted to the manufacture of malleable iron castings.

The Thomas D. West Ingot Mold Company, Sharpsville, Pa., has awarded the contract to the American Bridge Company for the erection of a steel and brick addition to its plant which will almost double its capacity. The desire of the company is to separate the core and casting departments. The West company's plant is the largest of its kind in the world.

F. H. Wheeler has bought one-third interest in Langsenkamp Brothers' brass works, Indianapolis, Ind., and the firm will hereafter be known as Langsenkamp Brothers & Wheeler, brass founders and finishers. The firm has bought the Chenoweth power plant, which has a frontage of 171 feet on Shelby street, 225 feet on Sanders street and 197 feet on Barth avenue. The firm will establish here the largest brass foundry in the State.

The American Car & Foundry Company is to remodel the buildings of its plant at Depew, N. Y., which has been closed for some years, and use them as a malleable iron foundry in connection with its several car building plants located elsewhere throughout the country.

The foundry of the Columbia Grey Iron Company, Columbia, Pa., which was partially destroyed by fire April 29, has been rebuilt, and the company is again filling its customers' orders with the soft, small gray iron castings which have proven so satisfactory.

The business of the Arcade Malleable Iron Company and the Worcester Malleable Iron Works, Worcester, Mass., which have been conducted by George B. Buckingham for many years, will be continued without interruption. Frank S. Chipman, who has been superintendent of the works, has been made the manager by the Buckingham estate. The business is an old one, having been in continuous operation since 1850, when it was established by the late Warren McFarland, who was succeeded in the management by Mr. Buckingham.

Bridges and Buildings.

The McClintic-Marshall Construction Company, Pittsburgh, Pa., has purchased the plant of the American Structural Steel Company at Carnegie, Pa. The price paid was about $200,000, and the plant is one of the most complete structural works in the Pittsburgh district. It covers about 11 acres. The purchase of this addition now gives the McClintic-Marshall Construction Company an annual output of about 150,000 tons of finished steel for use in buildings and bridges.

Fires.

The iron works of Smith & Robbins, at Seeleyville, near Honesdale, Pa., were destroyed by fire last week. The loss is placed at $15,000.

Hardware.

The Republic Metalware Company, Buffalo, N. Y., is erecting a large addition to its plant, consisting of a five-story brick warehouse and office building, a galvanizing building and retinning building, each one story in hight.

The E. R. Wagner Mfg. Company, maker of vehicle hardware, sheet metal stampings and hardware specialties, North Milwaukee, Wis., has under way a large addition to its present factory, consisting of a fireproof one-story structure covering 25,000 square feet of floor space. Equipment will be moved into the addition from the old building, although it is possible that some equipment will be needed for handling goods and also heating apparatus.

The Dickson-Patton Hardware Company, Ambridge, Pa., has been granted a Pennsylvania charter. The capital is $10,000 and the incorporators are W. M. Dickson, Charles Patton, D. Rose, R. B. Walker, Sewickley, and A. M. Ross, Economy, Pa.

The Schlueter Mfg. Company, St. Louis, Mo., has purchased the building on the southeast corner of Broadway and John avenue, containing about 45,000 square feet of floor space. The company intends to manufacture a complete line of pieced, stamped and japanned tinware and has purchased a complete equipment, including power cutting and drawing presses, double seamers, wiring machines, &c., from the E. W. Bliss Company, Brooklyn, N. Y. It is expected to begin operations in the factory about July 15. J. A. Schlueter, who is actively interested in the enterprise, was for 17 years superintendent of the St. Louis Stamping Company, St. Louis.

Racine Boat Company, Racine, Wis., has purchased a tract of land on which a new plant will be built. This tract will give a river frontage of over 600 feet. The new buildings will be designed especially for the manufacture of boats and their accessories, such as motors and marine hardware, &c. No expense will be spared to make it an up to date plant, equipped with machinery especially adapted for the manufacture of the company's line.

Miscellaneous.

The Maryland Brass & Metal Works, Baltimore, has purchased a plot of ground on the Pennsylvania Railroad tracks, 85 x 375 feet, on which it will erect a two-story brick and steel building. Later the main building will be erected.

The American Air Brake Company, recently organized with a capital of $1,500,000, to manufacture air brakes under the Mann system, is seeking a location in the Pittsburgh district. Capitalists interested in the company have been experimenting since 1904 with this type of air brake with satisfactory results. It has been in use for the past year on the Baltimore & Ohio Railroad.. The company is mainly composed of New York and Baltimore capitalists, with Pittsburgh interests holding a part of the stock. There will be no stock or bonds offered for sale, as all finances have been looked after, and the company is now anxious to begin turning out the product. William B. Mann, inventor of the brake, is president; W. T. Stillwell, first vice-president; W. W. Merrill, second vice-president, and William H. Evans, formerly of Pittsburgh, secretary.

The Standard Asbestos Pipe Company, recently incorporated at Buffalo, N. Y., has taken over the plant and business of Amos R. Tweed and will continue the manufacture of all kinds of steam and hot and cold water pipe covering. Amos P. Tweed is president; William A. Lindner, vice-president; J. C. Lindner, secretary and treasurer.

T. W. Spinks, Covington, Ky., who is interested with others in the erection of a large brick plant, advises that equipment has been purchased as follows: American Clay Mfg. Company, brick machinery; Detroit Blower Company, fans; Tudor Boiler Mfg. Company, boilers, and the Lane & Bodley Company, Cincinnati, engines. Richardson & Lovejoy, Columbus, Ohio, are the consulting engineers for the work.

The Westinghouse Air Brake Company, Wilmerding, Pa., has received an order for an electric-pneumatic brake system for 45 cars on the Boston elevated traction system and for 50 cars for the surface lines of the same company. The new brake system, operated by the motorman, consists of electric air compressors under each car, which automatically keep the air chambers filled and works simultaneously under all the cars of a train, no matter how long the train may be. The 95 sets of brakes will be turned out at Wilmerding, and under the operating company known as the Westinghouse Traction Brake Company, which uses the same plant as the Westinghouse Air Brake Company.

The buildings and ground formerly occupied by Wallace, Banfield & Co., Irondale, Ohio, in the making of tin plate have been sold to the East Ohio Sewer Pipe Company, which will raze the old buildings and erect a 16-kiln sewer pipe plant.

The Wallace Barnes Company, Bristol, Conn., manufacturer of small springs, is to erect a new factory building, 40 x 140 feet and four stories, of mill construction. The purpose of the building is to replace a present wooden structure, and no new machinery will be required.

The Detroit White Lead & Color Works, Detroit, Mich., is enlarging its plant by the erection of an additional story, 41 x 150 feet, to the present factory and a new building 26 x 41 feet, three-story and basement. Proposals are now being received on the construction work and equipment, the latter including two large boilers.

The Buffalo Carburetor Company has been incorporated at Buffalo, N. Y., to manufacture carburetors and mixers for fluids and gases, with a capital stock of $10,000. The incorporators are W. F. White, J. G. Williams and R. A. Heusler, Buffalo.

The E. R. Thomas Motor Company, Buffalo, N. Y., will at once commence the erection of a three-story addition, 60 x 260 feet, to its automobile manufacturing plant on Niagara street. The new building will be of reinforced concrete construction.

The American Slag Company has bought the rights of the Bechtelsville Slag Company, at Bechtelsville, Pa. The owners are H. H. William and J. W. Kline. The plant will be tripled in size.

The Keystone Wagon Works, Reading, Pa., will build an annex and make automobile bodies, the company having increased its capital from $400,000 to $600,000.

The Schaefer Mineral Drier Company has been incorporated at Indianapolis, Ind., with $60,000 capital stock, to manufacture dryers for sand minerals. The directors are Alvin T. Hert, Frank M. Schaefer and Chas. L. Bieler.

The Worcester Metal Trades' Association, Worcester, Mass., will become a branch of the National Metal Trades' Association. Most of the members of the local association have applied for membership in the national, which converts the local from an independent body into a branch organization. This action is in accordance with a vote taken at the annual meeting of the Worcester association. The Worcester Labor Bureau will be continued as formerly.

The Iron and Metal Trades

Almost like a clap of thunder from a clear sky has come the dissolution of the Southern Furnace Association, an unusually short lived organization based upon a gentlemen's agreement among the leading Birmingham furnace companies. For months Northern furnaces have taken the greater part of what business was coming up in Foundry Iron, while large consumers, notably in the West, have ostentatiously withdrawn from the market again and again. The crisis was reached this week, one of the Southern makers entering the market. Just how much business was secured cannot be accurately determined, but one of the principal transactions was the sale of 10,000 tons to the International Harvester Company on the basis of $13 for No. 2 Birmingham, a decline of $1 per ton below the nominal price recently quoted. Since the company named has been inquiring for more than double that amount, it looks as though the consumer is expecting further inducements before covering the entire requirements. There are reports to the effect that a Cast Pipe foundry in Ohio has also taken a large tonnage.

This break in prices cannot help but have a disquieting effect. It came at a time when in other sections the makers were showing some strength. Thus only a few days since leading Buffalo makers had sent out orders to their salesmen to advance prices 25 cents per ton. In competitive territory an adjustment of prices on Foundry Iron must follow, unless the tonnage which the Southern makers feel it necessary to book should be only moderate. In such competitive markets Southern Iron is now freely offered at $13.25 to $13.50 for No. 2 Foundry, Birmingham.

It must be clearly understood that the situation is entirely different in the markets for Steel making Irons. For Bessemer Pig the markets are absolutely bare, and there is not much Basic immediately available. It is in the latter, however, that the changed conditions in the foundry markets may be felt to some extent.

The demand for Finished Material is very good. The leading interest, during the first 15 days of this month, booked an aggregate of orders in excess of its best shipping records.

The Rail makers have added 26,000 tons for the Missouri Pacific and 11,000 tons for the Florida East Coast to their 1907 commitments. Some large orders for Structural Material have been entered by shops in the Pittsburgh district. Plate makers have now the material for nine lake boats for 1907. One of the large contracts which is coming into the market is 23,000 to 24,000 tons of Structural Material for the yards, &c., of the New York Central.

There has been a surprisingly large volume of business lately, considering the season, for Wire products, and sales aggregating 100,000 tons of Steel Bars, for delivery during the year beginning July 1, have been made to consumers outside of the Implement trade, who were disgruntled at not securing the concession granted on season contracts to the latter some time since.

The Eastern Bar Iron Association is to meet to deal with the price cutting which has become more prevalent lately as the result of poor business.

The Cast Iron Pipe trade is under a terrific pressure for deliveries. Premiums of $1 to $2 per ton are being offered in vain to Eastern makers for delivery prior to September 1. Only one bidder put in a figure for the 40,000 tons of Water Pipe for Philadelphia, and he scorned the specifications. The contract for the 6000 tons of Plates for the Riveted Pipe has not yet been placed.

The price of Light Steel Rails has been advanced $1 per ton.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	June20, 1906.	June13, 1906.	May23, 1906.	June21, 1905.
PIG IRON, Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia	$18.50	$18.50	$18.50	$16.50
Foundry No. 2, Southern, Cincinnati	*16.25*	16.75	16.75	14.50
Foundry No. 2, Local, Chicago	*18.00*	18.25	18.50	16.25
Bessemer, Pittsburgh	**18.35**	18.10	18.10	15.35
Gray Forge, Pittsburgh	*16.35*	16.35	16.50	14.85
Lake Superior Charcoal, Chicago	19.00	19.00	19.00	16.50
BILLETS, RAILS, &c., Per Gross Ton:				
Bessemer Billets, Pittsburgh	**27.00**	26.50	26.00	21.00
Forging Billets, Pittsburgh	**33.00**	32.00	32.00	25.00
Open Hearth Billets, Phila.	**29.00**	29.00	28.00	26.00
Wire Rods, Pittsburgh	34.00	34.00	34.00	33.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
O. Steel Rails, Chicago	14.00	14.00	14.00	12.00
O. Steel Rails, Philadelphia	16.25	16.25	16.25	15.00
O. Iron Rails, Chicago	21.25	21.25	21.25	17.00
O. Iron Rails, Philadelphia	*20.50*	20.50	21.00	18.00
O. Car Wheels, Chicago	*18.00*	18.00	19.00	14.25
O. Car Wheels, Philadelphia	*16.75*	16.75	17.00	14.50
Heavy Steel Scrap, Pittsburgh	**15.50**	15.75	14.50	13.50
Heavy Steel Scrap, Chicago	*13.00*	13.00	14.00	11.75
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	1.63½	1.63½	1.63½	1.63½
Common Iron Bars, Chicago	1.66½	1.66½	1.66½	1.50
Common Iron Bars, Pittsburgh	1.50	1.50	1.50	1.55
Steel Bars, Tidewater, New York	1.64½	1.64½	1.64½	1.64½
Steel Bars, Pittsburgh	1.50	1.50	1.50	1.40
Tank Plates, Tidewater, New York	1.74½	1.74½	1.74½	1.74½
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.60
Beams, Tidewater, New York	1.84½	1.84½	1.84½	1.74½
Beams, Pittsburgh	1.70	1.70	1.70	1.60
Angles, Tidewater, New York	1.84½	1.84½	1.84½	1.74½
Angles, Pittsburgh	1.70	1.70	1.70	1.60
Skelp, Grooved Steel, Pittsburgh	1.57½	1.57½	1.57½	1.50
Skelp, Sheared Steel, Pittsburgh	1.60	1.60	1.60	1.55
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh	**2.40**	2.40	2.25	2.20
Wire Nails, Pittsburgh	1.85	1.85	1.85	1.80
Cut Nails, Pittsburgh	*1.75*	1.75	1.80	1.80
Barb Wire, Galv., Pittsburgh	2.30	2.30	2.30	2.25
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Copper, New York	*18.62½*	18.75	18.75	15.00
Spelter, St. Louis	**6.10**	6.00	5.80	5.07½
Lead, New York	*5.90*	6.00	6.00	4.50
Lead, St. Louis	5.90	5.92½	5.90	4.42½
Tin, New York	*38.60*	38.87½	41.90	30.55
Antimony, Hallett, New York	*24.00*	25.00	27.00	11.50
Nickel, New York	**45.00**	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	$3.94	$3.94	$3.94	$3.74

Chicago.

FISHER BUILDING, June 20, 1906.—(*By Telegraph.*)

A decline on all Southern grades of Pig Iron, ranging from 50c. to $1 a ton, has followed the dissolution of the Southern Furnace Association. At the expiration last week of the 60-day agreement entered into in April by nearly all the Southern furnace interests it was decided to abandon the $14 basis for No. 2 and open market was declared. Prices declined immediately to $13.50, and $13 has been done this week. The rumored cutting of prices by some of the operators, parties to this agreement, is alleged to have been the direct cause of the termination of the pact, although it is strongly intimated that the failure of the effort to consolidate most of the powerful Southern interests had a strong bearing on the action taken. This week the International Harvester Company purchased 10,000 tons of Southern Iron for June and July shipment on the basis of $13 for No. 2, and further heavy purchases will be made extending through the last half, providing more concessions can be secured. The termination of this agreement has unsettled conditions, and notwithstanding the depleted condition of foundry stocks it is doubtful if an extensive buying movement will follow until after a firmer basis has been established. Ohio River furnaces have likewise been making low prices on both Foundry and Malleable Bessemer Iron, and Northern stacks have been compelled to shade $18 on both grades to meet this competition. Sales of Steel Bars by both the Carnegie Company and the Illinois Steel Company, aggregating over 100,000 tons, to large consumers outside of the implement trade for their year's requirements from July 1 on the basis of 1.50c., Pittsburgh, is by far the most noteworthy event in the market for Finished Materials. It indicates the passing of the

feeling of resentment which these buyers bore against the leading Steel interests on account of the concession of $2 a ton recently made the implement trade, and also shows the dominating strength at present of Steel products over Pig Iron. Concessions on Nails and Wire products of $1 a ton are now being made more freely by several independent interests. The American Steel & Wire Company, on account of Steel shortage and a seasonable falling off in demand, has about 20 per cent. of its capacity idle.

Pig Iron.—The termination of the Southern Furnace agreement has unsettled the Iron market to such an extent that its effect on general conditions cannot be foretold at present. The leading interests, including the Tennessee Coal, Iron & Railroad Company, Republic Iron & Steel Company and Sloss-Sheffield Steel & Iron Company, have made a reduction on all grades of 50c. a ton, but several other operators, especially those not parties to the agreement, have reduced their prices to $13, Birmingham, on No. 2 and on other grades in proportion. The International Harvester Company has already contracted for 10,000 tons for June and July shipment, and is taking all scattering lots offered at concessions. The Massillon Iron & Steel Company purchased 35,000 tons from Ohio furnaces, and will probably come into the market again to cover for the last half. Iron merchants who have been making heavy short sales in the past two months are covering at a good profit, and it is probable that the downward march will thereby be temporarily checked. Another sale of Bessemer Iron, aggregating 6000 tons, has been made to a local interest by a Western furnace, and two Northern merchant stacks are now going on Bessemer, on account of the falling off in Foundry Iron tonnage. Ohio furnaces have sold Malleable Bessemer in this market during the week at $17.80, delivered, and Northern No. 2 has declined to $18. Prevailing quotations, f.o.b. Chicago, are as follows:

Lake Superior Charcoal	$19.00 to $19.50
Northern Coke Foundry, No. 1	18.50 to 18.75
Northern Coke Foundry, No. 2	18.00 to 18.50
Northern Coke Foundry, No. 3	17.50 to 17.75
Northern Scotch, No. 1	19.25 to 19.50
Ohio Strong Softeners, No. 1	18.55 to 18.80
Ohio Strong Softeners, No. 2	18.05 to 18.30
Southern Coke, No. 1	17.40 to 17.90
Southern Coke, No. 2	16.90 to 17.40
Southern Coke, No. 3	16.40 to 16.90
Southern Coke, No. 4	15.90 to 16.40
Southern Coke, No. 1 Soft	17.40 to 17.90
Southern Coke, No. 2 Soft	16.90 to 17.40
Southern Gray Forge	15.90 to 16.15
Southern Mottled	15.65
Malleable Bessemer	17.80 to 18.05
Standard Bessemer	19.30 to 19.55
Jackson Co. and Kentucky Silvery, 6 %	20.30 to 20.80
Jackson Co. and Kentucky Silvery, 8 %	21.30 to 21.80
Jackson Co. and Kentucky Silvery, 10 %	23.30 to 23.80

Metals.—The Spelter market is very firm and steadily advancing prices are looked for in this territory. There is nothing doing in Antimony, prices having declined 3c. A good demand prevails for Copper and prices are held firmly. Though there is a lack of confidence in Pig Tin quotations are unchanged. We quote: Casting Copper, 18¾c. to 18⅞c.; Lake, 18⅞c. to 19¼c., in car lots; small lots, ¼c. to ⅜c. higher; Pig Tin, car lots, 42¼c. to 42¾c.; small lots, 43¼c. to 43½c.; Spelter, prompt delivery, 6.20c. to 6.30c., for car lots; Lead, Desilverized, 6.10c. to 6.20c., for 50-ton lots; Corroding, 6.60c. to 6.70c., for 50-ton lots; on car lots, 2¼c. per 100 lbs. higher; Cookson's Antimony, 29c., and other grades, 26c. to 28c.; Sheet Zinc is $7.75 list, f.o.b. Laselle, in car lots of 60-lb. casks. On Old Metals we quote: Copper Wire, 16¾c.; Heavy Copper, 16¼c.; Copper Bottoms, 15½c.; Copper Clips, 15¾c.; Red Brass, 15½c.; Red Brass Borings, 13¾c.; Yellow Brass, 12¼c.; Yellow Brass Borings, 10¼c.; Light Brass, 8¾c.; Lead Pipe, 4¾c.; Tea Lead, 4½c.; Zinc, 4½c.; Pewter, No. 1, 24c.; Tin Foil, 32c.; Block Tin Pipe, 27½c.

(By Mail.)

Billets and Rods.—The demand for both Bessemer and Open Hearth Rods continues strong, and shipments to consumers are still deferred from three to four weeks. There is a noticeable slackening in the demand for Forging Billets, which continue to be quoted at $33.50 to $34 per net ton. Bessemer and Open Hearth Rods are held on a basis of $35 to $36, f.o.b. Chicago.

Rails and Track Supplies.—No contracts for Rails for 1907 delivery have been placed by Western roads during the week, although a large tonnage is still under negotiation. Light Rails are firmer and in good demand, the Illinois Steel Company continuing nearly six weeks behind on deliveries. The demand for Spikes for immediate shipment is insistent and 2.35c. is readily obtainable. Quotations are unchanged, as follows: Angle Bars, accompanying Rail orders, 1906 delivery, 1.50c.; carload lots, 1.75c.; Spikes, 2.25c. to 2.35c.; Track Bolts, 2.65c. to 2.75c., base, Square Nuts, and 2.80c. to 2.90c., base, Hexagon Nuts. The store prices on Track Supplies range from 15c. to 20c. above mill prices. Light Rails, 30 to 45 lb. sections, $27 to $28; 25-lb., $29; 20-lb., $29 to $30; 16-lb., $30 to $31; 12-lb., $31 to $32, and lighter sections down to 8-lb., $38 to $40, f.o.b. mill. Standard Sections are unchanged, at $28, f.o.b. mill, full freight to destination.

Structural Material.—The American Bridge Company booked contracts during the week aggregating 3000 tons, as follows: Hunt & West Building, Dallas, Texas, 900 tons; Government bridges over the Illinois and Mississippi Canal, 600 tons; Kansas City Southern Railroad, 400 tons; High School, Rockford, Ill., 100 tons; Scarritt Building, Kansas City, 250 tons; highway bridges, Indiana, 600 tons; Chicago, Burlington & Quincy Railroad, 100 tons. Western mills are in position to make early deliveries on practically all sections, notwithstanding the large volume of business that is continually being booked. Quotations are unchanged, as follows: Beams and Channels, 3 to 15 inches, inclusive, 1.86½c.; Angles, 3 to 6 inches, ¼-inch and heavier, 1.86½c.; larger than 6 inches on one or both legs, 1.96½c.; Beams, larger than 15 inches, 1.96½c.; Zees, 3 inches and over, 1.86½c.; Tees, 3 inches and over, 1.91½c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending or other shop work.

Plates.—Owing to the scarcity of Universal Mill Plates and the inability to secure early deliveries many fabricators are taking the narrower sizes from Sheared Plate Mills and are paying slight premiums for them. Up to the present time contracts for the Steel for six of the ten ships which the American Shipbuilding Company has booked for 1907 have been placed with the Illinois Steel Company and the Carnegie Steel Company. Quotations are unchanged, as follows: Tank quality, ¼-inch and heavier, wider than 6¼ and up to 100 inches wide, inclusive, car lots, Chicago, 1.76½c.; 3-16 inch, 1.86½c.; Nos. 7 and 8 gauge, 1.91½c.; No. 9, 2.01½c.; Flange quality, in widths up to 100 inches, 1.86½c., base, for ¼-inch and heavier, with the same advances for lighter weights; Sketch Plates, Tank quality, 1.86½c.; Flange quality, 1.96½c. Store prices on Plates are as follows: Tank Plate, ¼-inch and heavier, up to 72 inches wide, 2c. to 2.10c.; from 72 to 96 inches wide, 2.10c. to 2.20c.; 3-16 inch up to 60 inches wide, 2.10c. to 2.20c.; 72 inches wide, 2.35c. to 2.45c.; No. 8, up to 60 inches wide, 2.15c. to 2.25c.; Flange and Head quality, 25c. extra.

Sheets.—An insistent demand continues for both Black and Galvanized Sheets, and early deliveries on the latter are even harder to secure than on the former. Stocks in the hands of large distributors are exceedingly light, and much difficulty is experienced in securing shipments from the mills. The average delay in mill deliveries is 60 days, although on some sizes a little better can be done. Quotations are firmly maintained, as follows: Blue Annealed, Nos. 9 and 10, 1.96½c. to 2.01½c.; Nos. 16 and 17, 2.16½c. to 2.21½c.; Box Annealed, Nos. 18 to 20, 2.36½c. to 2.41½c.; No. 27, 2.56½c. to 2.61½c.; No. 28, 2.66½c. to 2.71½c.; Galvanized Sheets, Nos. 10 to 14, 2.71½c.; Nos. 17 to 21, 2.96½c.; Nos. 22 to 24, 3.11½c.; Nos. 25 and 26, 3.31½c.; No. 27, 3.51½c.; No. 28, 3.71½c.; No. 30, 4.21½c. Sheets from store: Blue Annealed, Nos. 10 and 11, 2.10c. to 2.20c.; Nos. 12 and 13, 2.15c. to 2.25c.; Nos. 14 and 15, 2.20c. to 2.30c.; No. 16, 2.30c. to 2.40c.; Box Annealed, Nos. 18 to 20, 2.50c. to 2.55c.; Nos. 22 to 24, 2.55c. to 2.60c.; No. 26, 2.60c. to 2.65c.; No. 27, 2.65c. to 2.70c.; No. 28, 2.75c. to 2.80c.; No. 30, 3.15c. to 3.20c. Galvanized from store: Nos. 10 to 20, 3c. to 3.05c.; Nos. 22 to 24, 3.15c. to 3.20c.; No. 26, 3.35c. to 3.40c.; No. 27, 3.55c. to 3.60c.; No. 28, 3.75c. to 3.80c.; No. 30, 4.95c. to 5c.

Bars.—Both the Illinois and the Carnegie Steel companies have taken large contracts for Steel Bars for the year's requirements, dating from July 1. All of this tonnage was booked outside of the implement trade and was placed on the basis of 1.50c., Pittsburgh, equivalent to 1.66½c., Chicago. This indicates that the large consumers outside of the implement trade have come to the conclusion that concessions from the established basis cannot be secured and owing to the general strength of the market in finished product have concluded to place their tonnage with the mills. The total contracts aggregate slightly over 100,000 tons. Concessions on Iron Bars have practically disappeared and the 1.50c., Pittsburgh, basis is pretty well maintained. We quote as follows: Iron Bars, 1.66½c.; Steel Bars, 1.66½c., both half extras; Hoops, 2.06½c., extras as per Hoop card; Bands, 1.66½c., as per Steel card; Soft Steel Angles and Shapes, 1.66½c., half extras. Store prices are as follows: Bar Iron, 2.10c.; Steel Bars, 1.85c., and as high as 2c. is asked on certain scarce sizes; Steel Bands, 1.85c. to 1.90c., half extras; Soft Steel Hoops, 2.30c. to 2.40c., full extras.

Merchant Pipe.—Although the demand at this season of the year is usually curtailed jobbers report heavy buying for the building trade. Stocks almost without exception are exceptionally low and heavy purchases will be made by large distributers within a few weeks. There has been no change in quotations, which are on a basis of 81 per cent. off the list, Pittsburgh, but official discounts on car lots, Chicago, are as follows: Black Steel Pipe, 78.35 per cent. on the base sizes, ¾ to 6 inches, and Galvanized, 68.35 per cent. Iron Pipe is quoted from 1½ to 2 points higher. From

store in small lots Chicago jobbers are quoting 76½ to 77 per cent. on Black Steel Pipe, ¾ to 6 inches.

Boiler Tubes.—Notwithstanding the low price which was established some time ago, concessions, it is reported, have been made by several of the independent mills. The new tonnage that is offered is comparatively light, although specifications are coming forward freely. Discounts on base sizes, 2¾ to 5 inches, in car lots, are as follows: Steel Tubes, 68.35; Iron, 55.35; Seamless, 50.35; 2½-inch and smaller and lengths over 18 feet, and 2½-inch and lengths over 22 feet, 10 per cent. extra. Store prices are unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1½ inches	40	35	42½
1¾ to 2¼ inches	50	35	35
2½ inches	52½	35	30
2¾ to 5 inches	60	47½	42½
6 inches and larger	50	35	..

Cast Iron Pipe.—Another advance of 50c. a ton was announced this week by the United States Cast Iron Pipe & Foundry Company. In the absence of notable tonnages there is a scattering of small orders, both from municipalities and the railroads and industrial plants, which shows a fair aggregate from week to week. We revise quotations as follows: Water Pipe, 4-inch, $32.50; 6, 8, 10 and 12 inch, $31.50; over 12-inch, $30.50, with $1 extra for Gas Pipe. Large municipal contracts are now being placed on the above basis, and no exception is made by the foundries on the sizes of the purchases.

Merchant Steel.—A number of belated implement contracts for special shapes were placed during the week, and this practically disposes of all of the future business from this source extending to July, 1907. The meeting of the Shafting Association will be held shortly, and, while no price changes are anticipated, it is probable that a change will be made in the method of making quotations. A change from the discount basis to a flat price in cents per pound has been suggested, with Pittsburgh as the basing point. Prices are unchanged, as follows: Planished or Smooth Finished Tire Steel, 1.86½c.; Iron Finish, up to 1½ x ½ inch, 1.81½c.; Iron Finish, 1½ x ½ inch and larger, 1.66½c., base; Channels for solid rubber tires, ¾ to 1 inch, 2.16½c., and 1⅛-inch and larger, 2.06½c.; Smooth Finished Machinery Steel, 1.91½c.; Flat Sleigh Shoe, 1.71½c.; Concave and Convex Sleigh Shoe, 1.96½c.; Cutter Shoe, 2.35c.; Toe Calk Steel, 2.21½c.; Railway Spring, 1.86½c.; Crucible Tool Steel, 6½c. to 8c., and still higher prices are asked on special grades. Shafting, 50 per cent. off on car lots and 45 per cent. in less than car lots, in base territory.

Coke.—While there has been no increase in the current demand for Foundry Coke, Connellsville grades are stronger and are firmly held on the basis of $3 at the ovens or $5.65, Chicago. The number of consignments to this territory have also lessened, indicating that the producers are disposing of their product to advantage in other territories. We quote 72-hour Connellsville Coke at $5.50 to $5.65, Chicago, and Virginia at $4.75 to $5. By-Product Coke is now firmly held at $5.65 on contracts and small lots for immediate delivery as well.

Old Material.—The flurry occasioned by the heavy purchases of Steel interests and Iron mills has passed and the market is quiet and practically without change in price. Ruling quotations were secured by the railroads last week on the list disposed of which were largely taken by dealers who are laying in stocks at the low basis now ruling. Heavy melting Steel although unchanged in price is stronger, due to the slow accumulations in dealers' hands. The range of prices paid by large consumers to producers and dealers, per gross ton, car lots, f.o.b. Chicago, is as follows:

Old Iron Rails	$21.25 to $21.50
Old Steel Rails, 4 feet and over	16.00 to 16.50
Old Steel Rails, less than 4 feet	14.00 to 14.50
Heavy Relaying Rails, subject to inspection, 50 pounds and under	27.00 to 27.50
Old Car Wheels	18.00 to 18.50
Heavy Melting Steel Scrap	13.00 to 13.50
Frogs, Switches and Guards	13.00 to 13.50
Mixed Steel	11.00 to 11.50

The following quotations are per net ton:

Iron Fish Plates	$16.00 to $16.50
Iron Car Axles	23.00 to 23.50
Steel Car Axles	18.00 to 18.50
No. 1 Railroad Wrought	13.50 to 14.00
No. 2 Railroad Wrought	12.50 to 13.00
Railway Springs	13.00 to 13.50
Locomotive Tires, smooth	14.00 to 14.50
No. 1 Dealers' Forge	11.00 to 11.50
Mixed Busheling	9.75 to 10.25
Iron Axle Turnings	9.75 to 10.25
Soft Steel Axle Turnings	9.50 to 10.00
Machine Shop Turnings	9.50 to 10.00
Cast Borings	7.50 to 8.00
Mixed Borings, &c	7.50 to 8.00
No. 1 Mill	8.50 to 9.00
No. 2 Mill	7.50 to 8.00
No. 1 Boilers, cut to Sheets and Rings	9.50 to 10.00
No. 1 Cast Scrap	13.50 to 14.00
Stove Plate and Light Cast Scrap	11.00 to 11.50
Railroad Malleable	13.50 to 14.00
Agricultural Malleable	12.50 to 13.00

Hull & Co., Chicago, dealers in Pig Iron, Coke and Coal, have incorporated, with a capital stock of $50,000, for the more expeditious handling of their business. The firm was founded by George H. Hull, to conduct a Pig Iron business, shortly after the close of the Civil War. It was one of the pioneers in the Pocahontas Coal field and is a large exporter, and is also a large shipper of Connellsville Coke and Coke from other States, such as Virginia, Kentucky, Alabama, Arkansas, Indian Territory and Colorado. The company also controls the Chicago & Marion Coal Company, operating mines in the Carterville district in southern Illinois. Howard Tracy is president, E. H. Irwin vice-president and Edwin L. Somerville secretary and treasurer.

Philadelphia.

REAL ESTATE TRUST BUILDING, June 19, 1906.

The Iron and Steel markets seem to have an improved tone, sales of Pig Iron having been in good volume and at full prices. Finished products are not as buoyant as some of the primary materials, but there is more inquiry, and manufacturers are inclined to look for fairly good contracts before the end of the month. The feeling outside the Iron trade is a little pessimistic, and although the Iron trade has kept up magnificently and gives no signs of weakening, it is a fact that the unsatisfactory conditions in other directions are in some measure reflected among those engaged in the manufacture of Iron and Steel. Intimations from high authorities that the financial situation is liable to be very much strained during the next few months have a depressing influence, and as the bourses in Europe seem to be in accord with these views buoyancy in the manufacturing interests is checked considerably. The borrowing capacity of some of the most important of our railroads appears to have almost reached its limit, and as capital is notoriously timid it is clear that there is no room for any great optimism at this particular moment. This, however, is not entirely the result of conditions in this country. The European situation is extremely critical, and in banking circles is regarded as very serious. The storm may blow over, but until the outlook is clearer than it is to-day it is hardly probable that any heavy engagements for Iron and Steel for extended deliveries will be made.

Pig Iron.—Reports of the week's business have been uniformly favorable. There has been good buying along the entire line, and as a rule at full prices. In some cases a few cents per ton advance has been secured for prompt shipments, but for the last half year's deliveries there is no change and buyers can get all they want at about $18.25 to $18.50 for No. 2 X Foundry, $16.25 to $16.50 for Gray Forge and $17.50 to $17.75 for Basic. The decrease in the output, although not important, has had a somewhat stimulating influence, which has been further confirmed by the increased sales during the past week; but midsummer dullness is at hand, which may check further progress in that direction, and a good deal, if not everything, will depend on production. There seems to be little doubt that requirements will be somewhere around 2,000,000 tons of Pig Iron per month, and if no greater tonnage than that is produced there is no reason why prices should be lower. Consumption seems to be pretty well assured, and in case of favorable developments as regards crops, finances, &c., a still larger tonnage may be needed, in which case prices may work higher, although the most sanguine operators consider that they are high enough. Furnaces are making very little headway in the matter of deliveries, and under even the most favorable circumstances they are not likely to do more than catch up with their arrears. In all departments it is a close run to get enough material to keep the wheels turning. A large business has been done in Mill Irons at $16.25 to $16.50, No. 3 and No. 4 Foundry at $16.75 to $17.25, No. 2 Plain at $17.75 to $18, No. 2 X at $18.25 to $18.75 and in Basic for early delivery at $17.75 to $18, although for the last quarter $17.50 would be accepted. The demand does not appear to have been fully satisfied, as there is still a good deal of inquiry for July and August shipments, which will probably result in additional business in the near future. Low Phosphorus is also in demand, with sellers at $24.25 to $24.50, delivered, according to quantity, delivery, &c. The general range for Philadelphia and nearby deliveries would be about as follows:

No. 1 X Foundry	$19.25 to $19.50
No. 2 X Foundry	18.50 to 18.75
No. 2 Plain	17.75 to 18.25
Standard Gray Forge	16.25 to 16.50
Ordinary Gray Forge	15.75 to 16.00
Basic	17.60 to 17.85
Low Phosphorus	24.50 to 24.75
Malleable	18.75 to 19.25
Bessemer	19.85 to 20.00
Lake Superior Charcoal	21.50 to 22.50

LATER, June 20.—(*By Telegraph.*)—Sales are reported this morning of Southern No. 2 Foundry at $13.50. Local brands have also sold freely at prices named yesterday, but the Southern reduction will surely be felt later, as it will encourage buyers to postpone.

Steel Alloys.—The market has turned firmer, and with several somewhat urgent inquiries asking prices (with some sales) are now $90 for July Ferro and $72.50 to $75 for the

last quarter; 12 per cent. Ferrosilicon, $35 to $36; Spiegeleisen, $31 to $32.50.

Steel.—The demand is fully maintained and prompt shipments are rather hard to secure. Prices are firm at $29 for ordinary Open Hearth Steel and $32 to $33 for Forging Steel.

Plates.—Mills are well employed on Heavy Plates, but work is rather badly wanted on the lighter descriptions. The shipyards have been good buyers during the past few weeks, and prospects in this direction and from other large consumers are very encouraging. The 6000-ton order for Riveted Pipe for the Water Department of this city, mentioned last week, has not been given out, but it is expected that it will be awarded before the end of the month. Prices unchanged, as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel	1.73½	1.78½
Flange or Boiler Steel	1.83½	1.88½
Marine	2.13½	2.18½
Locomotive Fire Box Steel	2.23½	2.28½

The above are base prices for ¼-inch and heavier. The following extras apply:

	Extra per 100 pounds.
3-16-inch thick	$0.10
Nos. 7 and 8, B. W. G.	.15
No. 9, B. W. G.	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00

Structural Material.—There is a good demand, but ordinarily buyers can get deliveries of almost anything they want inside of 30 to 60 days. Most of the business is of this character, the larger contracts being made in New York or some of the Western cities. Prices are as last quoted, namely, Beams, Channels and Angles, 1.83½c. to 2c., delivered.

Bars.—The Bar Iron situation is somewhat disturbed by reports of cutting in prices by some members of the Bar Iron Association. A meeting is to be held in regard to this matter, when it is hoped that an amicable arrangement will be made. The demand is poor, and while in view of the approaching holidays it had been hoped that new business would be secured the response so far has not been satisfactory. Makers of first-class Bars are firm at 1.63½c. to 1.68½c. for either Iron or Steel Bars. Those who accept less probably make only a few sizes and claim that they have to cut before they can find a market.

Sheets.—There is a very good demand and mills are employed to their full capacity. Lots from stock are quoted as follows, with about a tenth rebate for mill shipments: Nos. 18 to 20, 2.40c.; Nos. 22 to 24, 2.50c.; Nos. 25 and 26, 2.60c.; No. 27, 2.70c., and No. 28, 2.80c.

Old Material.—The market is extremely dull, some buyers having withdrawn from the market entirely, while others have reduced their bids. It is difficult to give exact quotations, but the following are a fair average of bids and offers for deliveries in buyers' yards:

Scrap Steel Rails and Crops	$16.25 to $16.50
No. 1 Steel Scrap	15.75 to 16.00
Low Phosphorus Scrap	20.50 to 21.00
Old Steel Axles	19.00 to 20.00
Old Iron Axles	25.00 to 25.50
Old Iron Rails	20.50 to 21.00
Old Car Wheels	16.75 to 17.25
Choice Scrap, R. R. No. 1 Wrought	18.00 to 18.50
Choice No. 1 Yard Scrap	16.00 to 16.50
Long and Short	15.00 to 15.50
Machinery Scrap	15.50 to 16.00
Wrought Iron Pipe	12.75 to 13.25
No. 1 Forge Fire Scrap	13.75 to 14.00
No. 2 Light Ordinary	10.00 to 11.00
Wrought Turnings	12.00 to 12.50
Axle Turnings, Choice Heavy	13.00 to 13.50
Stove Plate	11.00 to 11.50
Cast Borings	9.25 to 9.75

Birmingham.

BIRMINGHAM, ALA., June 19, 1906.—(*By Telegraph.*)

One of the large Pig Iron makers here says the market is now open and No. 2 selling for $13.50. Another quotes locally $13.75. A third admits making lower prices in the North, but still wants $14 at home, and says there has been no disturbance of the local market.

BIRMINGHAM, ALA., June 18, 1906.

Pig Iron.—The market for the past week has shown a slight improvement, though no large orders are reported, the business consisting entirely of small lots. Inquiries have been rather more numerous, but as the producers appear to be holding firm for the agreed price buyers are still holding off. The report of the Car Service Association shows quite a falling off in shipments of Foundry Iron, which is explained by the furnacemen to be the result of the number of stacks now out of blast and the increased list of furnaces making Basic Iron, which is largely consumed in the district. No stocks are accumulating, however, and an inquiry to-day for No. 2 Soft for immediate shipment was turned down by all the producers here, the best that could be done on this grade being delivery during the latter part of July.

The furnace of the Lacey-Buek Iron Company at Trussville will be blown out within the next week or ten days for relining and general repairs, which will require about 90 days.

The Alabama Consolidated Coal & Iron Company reports its No. 2 furnace at Ironaton will be blown in within the next few days, which will add about 150 tons per day to the district's production of Foundry Iron.

The No. 3 furnace of the Republic Iron & Steel Company, which has been out of blast undergoing repairs for several months, has been completed, but no announcement as to when it will go into commission has been made.

Cast Iron Pipe.—The efforts of the Cast Iron Pipe manufacturers are now directed almost entirely toward the producing end of their business, their present orders being sufficient to keep them going for several months. Many small orders are being received and each week's sales aggregate a considerable tonnage. Prices on Water Pipe are approximately as follows: 4 to 6 inch, $27 to $27.50; 8 to 12 inch, $26.50 to $27; over 12-inch, $25. Gas Pipe $1 per ton extra.

The manufacturers of Cast Iron Soil Pipe are also enjoying their share of the general prosperity. This is one of the principal industries in this section. Owing to the vast amount of building operations going on throughout the country the demand is better than for many years, as a consequence of which the foundries are far behind with their deliveries.

Old Material.—There has been quite a good demand this week for No. 1 Steel and Heavy Cast, with other grades rather dull. Dealers are carrying good stocks and are quoting about as follows per gross ton, f.o.b. cars here:

Old Iron Rails	$19.00 to $19.50
Old Iron Axles	18.50 to 19.00
Old Steel Axles	16.00 to 17.00
Old Car Wheels	17.00 to 17.50
No. 1 Railroad Wrought	16.00 to 16.50
No. 2 Railroad Wrought	15.00 to 15.50
No. 1 Country Wrought	13.75 to 14.25
No. 2 Country Wrought	11.75 to 12.25
Wrought Pipe and Flues	11.75 to 12.25
Railroad Malleable	12.00 to 12.50
No. 1 Steel	12.50 to 13.00
No. 1 Machinery Cast	11.50 to 12.00
Stove Plate and Light Cast	9.00 to 9.50

Rudolph Wiegelin, now with the Bessemer Foundry & Machine Company, has resigned, effective July 1, and on that date will associate himself with the Payne & Joubert Machine & Foundry Company as general foreman of the foundry department.

Pittsburgh.

PARK BUILDING, June 20, 1906.—(*By Telegraph.*)

Pig Iron.—The scarcity of Bessemer Iron for delivery prior to September 1 is becoming more pronounced and prices are firm and higher. A local consumer has bought 3000 to 4000 tons for reasonably prompt shipment on the basis of $17.50, Valley furnace, and we note another sale of 1000 tons for July delivery at the same price. Bessemer Iron for shipment prior to September readily commands $17.50 and as high as $17.75 is quoted. For delivery commencing September $17.25 to $17.50 is quoted. The United Steel Company, Canton, Ohio, has bought a round tonnage of Basic for delivery over the balance of the year at a price slightly less than $17, Valley furnace, the business going to a nearby interest that has a 50c. freight rate to Canton. Basic for forward delivery is firm on the basis of $16.90 to $17, Valley furnace. There is a better demand for Foundry Iron, and consumers are urging prompt shipment on contracts, showing that the yards of the foundries are bare. We quote Northern No. 2 Foundry at $16.25 to $16.50, Valley furnace. There is no inquiry for Forge Iron, and the market is weak at $15.50, Valley furnace, or $16.35, Pittsburgh.

Steel.—Effective July 1, the Carnegie Steel Company will advance prices on Sheet and Tin Bars in random lengths $1 per ton, or from $28 to $29, f.o.b. Pittsburgh, actual freight to destination being added. It is said that Bars for third quarter delivery have already been sold at the higher price. Prices on Bessemer and Open Hearth Billets are decidedly firmer, and we quote Bessemer Billets at $27 and Open Hearth at $28 or higher, Pittsburgh. We quote Sheet and Tin Bars in random lengths for delivery prior to July 1 at $28, Pittsburgh, with an advance of 50c. for Cut Bars. For delivery after July 1 $1 per ton must be added to these prices.

(*By Mail.*)

General conditions in the Iron trade are very satisfactory for this season of the year. The tonnage in Finished Iron and Steel being placed at this time is larger than two or three weeks ago, and the outlook as to the balance of the year is good. There are no large inquiries in the market for Pig Iron, consumers being pretty well covered. Prices on Bessemer and Basic Iron are very firm, and the available

supply for delivery up to August is limited. Foundry and Forge Iron are quiet, and prices are only fairly strong. Steel in the form of Billets, Sheet and Tin Bars continues scarce, and prices are firm. Some large contracts have been placed for Plates, and also for Structural Steel. The demand for Sheets is active, and some heavy inquiries for Pipe are in the market. The Carnegie Steel Company has advanced prices $1 a ton on Light Rails, owing to the heavy demand, effective from Monday, June 18. The Scrap and Coke trades are rather quiet. The Amalgamated scales have been arranged with the Western Bar Iron Association, Republic Iron & Steel Company and American Sheet & Tin Plate Company. The Amalgamated Scale Committee is now in session in this city with the independent Sheet and Tin Plate companies, and it is expected will settle the Sheet and Tin Plate scales with these interests in a day or two. The chances are therefore that there will be no labor troubles this year.

Ferromanganese.—The market is practically bare of inquiry and prices are weak. We quote foreign Ferro for prompt shipment at $70 delivered, Pittsburgh, and on a firm offer this might be shaded. Lower prices are being quoted for delivery over the balance of the year.

Muck Bar.—We do not hear of any sales, and quote best grades, made from all Pig Tin, at nominally $28, Pittsburgh.

Wire Rods.—There is a fair amount of inquiry and prices are firm. We quote Bessemer and Open Hearth Rods at $34 to $34.50 and Chain Rods $35.

Skelp.—The market is very quiet, the demand having been dull for some time. We quote: Grooved Steel Skelp, 1.57½c. to 1.60c.; Sheared Steel Skelp, 1.60c. to 1.65c.; Grooved Iron Skelp, 1.65c. to 1.70c.; Sheared Iron Skelp, 1.75c. to 1.80c., Pittsburgh, these prices being for ordinary widths and gauges.

Structural Material.—The McClintic-Marshall Construction Company and Pittsburgh Steel Construction Company have taken some large contracts, but we omit giving details of these owing to existing labor troubles. A good many large inquiries are in the market, some of which are about ready to be placed. The leading Structural concerns are filled for the balance of this year, and have entered a good deal of tonnage for next year. Deliveries of Material by the mills are now quite satisfactory. Prices continue very firm and we quote: Beams and Channels, up to 15-inch, 1.70c.; over 15-inch, 1.80c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.70c.; 8 x 8 and 7 x 3½ inches, 1.80c.; Zees, 3-inch and larger, 1.70c.; Tees, 3-inch and larger, 1.75c. Under the Steel Bar card Angles, Channels and Tees under 3-inch are 1.60c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Steel Rails.—There is a good deal of inquiry, but the tonnage placed last week has been rather light. Among contracts taken by the Carnegie Steel Company is one from the Kalamazoo, Lake Shore & Chicago traction lines for 4600 tons, of which 3000 tons are for next year's delivery. The feature of the market is the enormous demand for Light Rails. The mills are entering a heavier tonnage at the present time than for several years. Owing to this heavy demand and the large tonnage on its books, the Carnegie Steel Company has advanced prices on Light Rails $1 a ton, effective from Monday, June 18. We quote Standard Sections at $28, at mill, and Light Rails as follows: 8-lb., $37; 10-lb., $33; 12-lb., $31; 16-lb., $30; 20-lb., $29.50; 25 to 45 lbs., $28.50 to $29, maker's mill.

Plates.—In the past week or ten days the Carnegie Steel Company has entered orders for 18,000 to 20,000 tons of Plates for nine lake boats, to be built by the American Shipbuilding Company and other interests. The general demand for both Universal and Sheared Plates is better than for some time, but on Sheared Plates the mills can make fairly prompt deliveries. Official prices continue to be shaded by the smaller mills from $1 to $2 a ton on the narrow sizes. These official prices are as follows: Tank Plates, ¼-inch thick, 6¼ up to 100 inches in width, 1.60c., base, at mills, Pittsburgh. Extras over the above prices are as follows:

	Extra per 100 pounds.
Gauges lighter than ¼-inch to and including 3-16-inch Plates on thin edge	$0.10
Gauges Nos. 7 and 8	.15
Gauge No. 9	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00
All sketches (excepting straight taper Plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
"A. B. M. A." and ordinary Fire Box Steel Plates	.20
Still Bottom Steel	.30
Marine Steel	.40
Shell Grade of Steel is abandoned.	

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ½ of 1 per cent. is allowable. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 inches wide down to 6 inches of Tank, Ship or Bridge quality.

Sheets.—The new demand for Sheets is fairly heavy, the mills reporting the tonnage entered so far this month as being satisfactory and larger than in June last year. The rush of roofing material to San Francisco is pretty well over. The American Sheet & Tin Plate Company shipped the past month over 8000 tons to that city. There is a continued scarcity of Sheet Bars, and some mills have not been able to operate more than half time for lack of Steel. Prices are quite firm, the high figures being paid for Sheet Bars practically prohibiting any cutting in prices of Sheets. We quote: Nos. 10 to 12 gauge, 2.10c.; Nos. 13 and 14, 2.15c.; Nos. 15 and 16, 2.20c.; Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.65c., and No. 30, 2.75c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.55c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.80c., and No. 30, 4.05c. We quote No. 28 Gauge Painted Roofing Sheets at $1.75 per square, and Galvanized Roofing Sheets, No. 28 Gauge, at $3.10 per square for 2-inch corrugations. These prices are for carload lots, jobbers charging the usual advances for small lots from store.

Iron and Steel Bars.—We are officially advised that some of the larger consumers have finally decided that it is useless to wait any longer for the mills to make a concession in prices and are placing heavy contracts for Steel Bars for delivery over the last half of this year and the first half of next year. One leading local interest has taken upward of 50,000 tons and other mills have entered a large tonnage. All these large contracts were placed at the full official price of 1.50c., at mill, and we are advised that this price will be maintained absolutely. The demand for Iron Bars has been light for the past month and a good deal of capacity is idle for lack of orders. We quote Iron and Steel Bars at 1.50c., base, half extras for carloads and larger lots.

Hoops and Bands.—A small amount of new tonnage is being placed at official prices, but specifications on old contracts represent the bulk of shipments being made by the mills. We quote Steel Hoops at 1.90c. and Bands for all purposes at 1.50c., base, half extras, as per Standard Steel card. These prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery, an advance of $2 a ton being charged for less than carloads.

Tin Plate.—While little new business is being placed, we are advised that the few orders being taken by the mills are at the full official price of $3.75 per base box, subject to the usual rebate. The Tin Plate mills are all busy on contracts and making heavy shipments. The shut-down of the Shenango works of the American Sheet & Tin Plate Company at New Castle is causing some comment in the trade, but is explained by the statement that the shut-down is for repairs, and to allow the Steel to be diverted to the other mills that need it badly. Orders on the books of the Tin Plate mills warrant full operation, or nearly so, for the next three or four months. We quote Tin Plate at $3.75 per base box, f.o.b. Pittsburgh, for 14 x 20 100-lb. Cokes, terms 30 days, less 2 per cent. off for cash in ten days, on which price a rebate of 5c. a box is allowed for carloads and larger lots.

Railroad Spikes.—The demand continues very heavy and the mills making Railroad Spikes are unable to keep up with their orders. The plant of the S. Severance Company at Glassport, Pa., which was burned some time ago, is being rebuilt as fast as possible, but this company will not be a factor in the trade for some time. Prices continue very strong, $2.15 per 100 lbs. being absolutely minimum of the market, while some makers are holding Spikes at $2.20 to $2.25 per 100 lbs., for the base sizes, f.o.b. Pittsburgh.

Merchant Steel.—A meeting of the Shafting Association is being held to-day (Tuesday) at Niagara Falls, N. Y., but it is not anticipated that any change will be made in prices. The demand for Shafting is reported to be quite heavy and the mills are firmly adhering to prices. A fair amount of new tonnage is being placed in Agricultural Steels, but the demand is not as heavy as usual at this season of the year. The market is unchanged, as follows: Planished or Smooth Finished Tire Steel, 1.70c.; Iron Finish up to 1½ x 1½ inch, 1.65c., and Iron Finish 1½ x ½ inch and larger, 1.50c., base, Pittsburgh, and Channels for solid rubber tire are quoted as follows: ¾, ⅞ and 1 inch, 2c., and 1⅛-inch and larger, 1.90c.; Toe Calk Steel, 2c. to 2.05c.; Railway Spring Steel, 1.75c. to 1.80c.; Cutter Shoes, 2.20c. to 2.25c.; Flat Sleigh Shoe, 1.50c. to 1.55c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades and 12c. and upward for special grades. We quote Cold Rolled Shafting at 50 per cent. discount in carloads and 45 per cent. in less than carloads, delivered in base territory.

Merchant Pipe.—Several natural gas companies in Kansas are in the market for about 108 miles of 4-inch to 12-inch Line Pipe for supplying natural gas to Wichita, Hutchinson and several other towns in Kansas, the parties

intending to buy their gas from the Wichita Natural Gas Company, which has a trunk line in that State There are some very desirable sizes in this contract, which is expected to be placed this week and will likely be divided between two or three mills. There is also an indefinite inquiry for about 40 miles of 6-inch Line Pipe, but it is not yet ready to be made public. Several other large inquiries are in the market. The demand for Merchant Pipe is very active, the mills being filled with work for some months ahead. Prices are unchanged, the extreme discount on Merchant sizes of Steel Pipe remaining at 81 and 5 per cent. off to the large trade. Official discounts for carloads, which continue to be shaded one point or more, are as follows:

Merchant Pipe.

	Jobbers, carloads.			
	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	%	%	%	%
⅛ and ¼ inch	72	56	60	53
⅜ inch	74	60	71	57
½ inch	76	64	73	61
¾ to 6 inches	80	70	77½	67½
7 to 12 inches	75	60	72½	57
Extra strong, plain ends:				
⅛ to ⅜ inch	65	53	62	50
½ to 4 inches	72	60	69	57
4½ to 8 inches	68	56	65	53
Double extra strong, plain ends:				
½ to 8 inches	61	50	58	47

Boiler Tubes.—We note a continued active demand for both Locomotive and Merchant Tubes, and the mills are entering a very large tonnage. Some are so well filled up that they cannot promise deliveries inside of two or three weeks or longer. Official prices are quite firm, as follows:

Boiler Tubes.

	Iron.	Steel
1 to 1½ inches	45	50
1¾ to 2¼ inches	45	62
2½ inches	50	64
2¾ to 5 inches	57	70
6 to 13 inches	45	62

Iron and Steel Scrap.—The scrap trade continues quiet, actual sales being confined mostly to small lots. It is now very close to July 1, when a good many mills will shut down for inventory and repairs, and the demand for Scrap is not likely to show much betterment before August or later. Prices of Heavy Steel Scrap are firm, but on the other kinds are rather weak. We quote: Heavy Steel Melting Scrap, $15.50 to $15.75; Machinery Cast Scrap, $15.50 to $15.75; No. 1 Wrought Scrap, $17.25 to $17.50; Bundled Sheet Scrap, $13.50 to $13.75; Cast Iron Borings, $8.25 to $8.50; Old Steel Rails, short pieces, $15.50 to $15.75; Old Steel Rails, Rerollers, $17.25 to $17.50; Wrought Turnings, $11.75 to $12; Old Car Wheels, $17.25 to $17.50; Old Iron Axles, $25.25 to $25.50; Axle Turnings, $12.75 to $13; Stove Plate, $10.50 to $10.75; Old Steel Axles, $20.50 to $21, all in gross tons, f.o.b. Pittsburgh.

Coke.—There is a moderate inquiry for Furnace and Foundry Coke, but prices are only fairly strong. We quote best grades of Connellsville Furnace Coke at $2.30 to $2.35, and Foundry Coke of the best Connellsville grades at $2.65 to $2.75 a ton at oven. The output of Coke continues heavy, the Upper and Lower Connellsville regions having made a little over 275,000 tons last week.

The Youngstown Sheet & Tube Company, Youngstown, Ohio, maker of Sheets and Tubular Goods in Iron and Steel, has opened an office in Room 2420 Farmers Bank Building, Pittsburgh, in charge of E. S. Rooney.

Frank L. Clark & Co. have opened an office in Room 815 Fulton Building, Pittsburgh, and will handle Iron and Steel products.

Cincinnati.

FIFTH AND MAIN STS., June 20, 1906.—(*By Telegraph.*)

Pig Iron.—The situation is somewhat changed from what it was a week since, and the market so far as Southern Iron is concerned is somewhat erratic. The agreement entered into some weeks since by several of the large Southern producers has been terminated, and the various furnaces interested are now quoting independently of each other. This has caused Iron from that section to be more freely offered at concessions over established prices. While it is unquestionably the fact that several of the furnaces are quoting on a $14, Birmingham, basis, it is reasonably certain that these same producers would hesitate but little to dispose of a fair tonnage at 50c. less. This figure is, as we read the situation, the price quotable, which conclusion is arrived at rather from an asking standpoint than from any special sales having been made. As a matter of fact, there has been rather a limited amount of Southern Iron sold in this territory during the past two weeks, and exact quotations are difficult to obtain. It is said that a number of the larger melters have been feeling the market for some weeks, but in its present unsettled condition are loth to come forward for any considerable tonnage. Southern furnaces, as a rule, are said to be anxious for business and are willing to shade prices in order to obtain it. Northern Irons are reported stronger, and prices appear to be firmly established. Quite a tonnage, comprising a number of small lots, has been sold, far exceeding that of Southern Iron during the same period. While conditions so far as Southern makes are concerned do not present an assuring aspect, there is, nevertheless, a good inquiry that will probably develop some large sales within the next few days. A sale at Indianapolis is reported of No. 4 Foundry, and an inquiry for 1500 tons of No. 2 Foundry from a southern Ohio melter, besides a number of 100 and 200 ton lots for divers Eastern points. Freight rates from Hanging Rock district are $1.15, and from Birmingham $3. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	$16.75 to $17.00
Southern Coke, No. 2	16.25 to 16.50
Southern Coke, No. 3	15.75 to 16.00
Southern Coke, No. 4	15.25 to 15.50
Southern Coke, No. 1 Soft	16.75 to 17.00
Southern Coke, No. 2 Soft	16.25 to 16.50
Southern Coke, Gray Forge	15.00 to 15.25
Southern Coke, Mottled	14.50 to 14.75
Ohio Silvery, No. 1 (8 per cent. Silicon)	21.65 to 22.15
Lake Superior Coke, No. 1	17.65 to 18.15
Lake Superior Coke, No. 2	17.15 to 17.65
Lake Superior Coke, No. 3	16.65 to 17.15

Car Wheel Irons.

Standard Southern Car Wheel	$24.00 to $24.25
Lake Superior Car Wheel	22.50 to 22.75

Coke.—The market is fairly active, consumers being well taken care of. Quite a number of fair sized contracts have been made during the week and the situation is all that could be desired. Prices are unchanged, the best brands of Connellsville and Virginia Foundry being quotable at $2.75 to $2.85, f.o.b. ovens.

Finished Iron and Steel.—The demand is good, especially for Iron Bars. New specifications in Structural work are said to have eased up somewhat, but as deliveries are some months behind present conditions are not materially affected. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.63c., with half extras; the same, in smaller lots, 2c., with full extras; Steel Bars, in carload lots, 1.63c., with half extras; the same, in small lots, 1.85c., with full extras; Base Angles, 1.83c., in carload lots; Beams and Channels, in carload lots, 1.83c.; Plates, ¼-inch and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16 gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14 gauge, in carload lots, 2.05c.; in small lots, 2.60c.; Steel Tire, 1 x ¼ inch or heavier, 1.83c., in carload lots.

Old Material.—The market is very weak, more Scrap offering than can be sold. Several sales of Relaying Rails have been made for Pacific Coast points, but as a general proposition there is little doing. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, $14 to $14.50 per net ton; Cast Borings, $5 to $6 per net ton; Steel Turnings, $7 to $8 per net ton; No. 1 Cast Scrap, $12 to $13 per net ton; Iron Rails, $19 to $20 per gross ton; Steel Rails, rolling mill lengths, $14 to $15 per gross ton; Relaying Rails, 56 lbs. and upward, $28 to $29 per gross ton; Iron Axles, $21 to $22 per net ton; Car Wheels, $17 to $18 per gross ton; Low Phosphorus Scrap, $18 to $19 per gross ton.

Cleveland.

CLEVELAND, OHIO, June 18, 1906.

Iron Ore.—The movement of Iron Ore down the lakes has been heavy the past week and the opinion is freely expressed that if the present rate continues the 5,500,000-ton mark will easily be reached for the month of June. This will break all records for ore shipments. The nearest approach to it was made last July, when the movement was 5,224,610 tons. The boats have enjoyed excellent dispatch at Lake Erie ports thus far and there seems to be no question that the fleet and docks will be able to handle the 5,500,000 or even 6,000,000 tons which some predict will be brought down the lakes this month. There is a doubt, however, in the minds of many whether the railroads will be able to handle that amount of tonnage. So far there has been no semblance of congestion and the fact that Coal movements are comparatively light at this time will assist in disposing of the increased Ore tonnage by using cars which would ordinarily be engaged in carrying fuel. Chartering in the Ore trade has been especially active during the past few days and the brokers have had no difficulty in placing all the vessels on the market. Shippers who have been out of the market are now in shape to take wild boats and these are being placed as fast as they get around. Freights remain unchanged and both contract and wild tonnage is being handled at 75c. from the head of the lakes, 70c. from Marquette and 60c. from Escanaba to Lake Erie ports.

Pig Iron.—The Pig Iron market is strong and furnaces in this section have advanced prices from 50c. to $1 on Foundry grades. Several furnaces have turned from Foundry to Basic and Bessemer, while others have been out of blast recently and have fallen behind in their orders. In addition to this the melt of Foundry Iron is reported heavier

than ever before. There seems to be a shortage of Iron for June shipment and local furnaces are apparently unable to supply the demand. Heavy orders have been placed during the week, but in spite of this it is believed that many foundrymen have not covered for the last half of the year. As the Southern combination which has kept the price of No. 2 Southern at $14, Birmingham, during the past 60 days has been dissolved, a decline in that class of Iron is to be expected. No. 2 Northern Foundry is now quoted at $16.50 in the Valleys, with sales at $16.75 and $17 reported. The market for Basic is strong at $17 to $17.50 in the Valleys. Bessemer is reported in active demand at $17.50 to $17.75 in the Valleys. Coke is strong, but unchanged.

Finished Iron and Steel.—Prices on Sheet Bars and Sheets continue strong, though unchanged from last week. The shortage in the former has materially decreased the output of Sheets, and most of the mills are behind with their orders. Sales are still being made at 3.55c. for No. 28 Galvanized and 2.50c. for No. 28 Black, both Pittsburgh. Plates are in good demand at unchanged prices. Forging Billets continue scarce, and premium prices are easily commanded by the few mills in a position to make quick delivery. Steel Bars are steady at 1.50c., Pittsburgh. The demand for Structural Steel is about the same as a week ago, and mills are still behind on their orders.

Old Material.—There was very little buying in the market during the past week, and what little there was consisted chiefly of trading among the dealers. The following are dealers' prices to the trade, f.o.b. Cleveland, gross tons: Old Steel Rails, $14.50 to $15.50; Old Iron Rails (nominal), $21 to $22; Iron Car Axles (nominal), $18.50 to $19.50; Heavy Melting Steel, $14.50. Net tons: Cast Borings, $8.50 to $9; No. 1 Busheling, $12.50 to $13; No. 1 Railroad Wrought, $16; No. 1 Cast, $14 to $14.50; Iron and Steel Turnings and Drillings, $9.50 to $10.50.

The Republic Company, Steel construction, has removed to suite 200 Schofield Building, Cleveland.

New York.

NEW YORK, June 20, 1906.

Pig Iron.—The event of the week has been the dissolution, after a life of 60 days, of the Southern Furnace Association, and a sharp cut in prices below the nominal figure of $14 for No. 2, Birmingham, which has been held for some time. It is understood that in the West some large contracts have been taken on the basis of $13. In this market Southern Iron has been freely offered during the past two days at $13.25 to $13.50 for No. 2, equal about to $17.25 to $17.50, tidewater. There can be little doubt that in such markets as the Southern Iron can reach the prices of Northern makers will need to be adjusted if they desire to secure any business. In Basic Pig the only item of note is an inquiry from a leading interest for 10,000 to 15,000 tons for the third quarter. We quote, nominally: Northern Pig Iron, No. 1, $18.50 to $19; No. 2 Foundry, $18 to $18.50, and No. 2 Plain, $17.50 to $18. Southern Iron is quoted $18 to $18.50 for No. 1 and $17.25 to $17.50 for No. 2.

Steel Rails.—A conspicuous contract for 1907 formally closed in the week was with the Missouri Pacific for 26,000 tons. Deliveries may begin in December this year if the mills can roll any part of the order then. The Florida East Coast has bought 11,000 tons for next year. The Pennsylvania requirements for 1907 have now been definitely determined, the total being 181,000 tons, of which the Steel Corporation mills get exactly one-half. The Chicago Junction Railway has taken 3500 tons, and the Lehigh & Hudson River 1500 tons for next year. Among business just booked for 1906 are 4600 tons for the Kalamazoo, Lake Shore & Chicago Traction, 1800 tons for the San José & Santa Clara, 4000 tons for the Western Maryland, 1600 tons for the Baton Rouge, Hammond & Eastern, 2000 tons additional for the Chesapeake & Ohio and 1000 tons for the Ann Arbor Railroad.

Structural Steel.—The most important local development of the week is the proposal of the New York Central Railroad to double the Steel construction required for its new terminal above Forty-second street. Something over two years ago the company awarded contracts for the overhead Steel work in connection with its new yards and the sinking of its track, about 23,000 tons of Steel being required. The revision of the plans which is now proposed will call for 23,000 to 24,000 tons of Steel in addition. It is expected that the company will be in the market at an early date. In the past week the New York Central has placed a contract for freight sheds, locomotive roundhouse and other construction at Gardenville, a suburb of Buffalo. About 1000 tons of Steel was awarded in this connection to the McClintic-Marshall Construction Company. In general the week has been quiet so far as new contracts are concerned. The American Bridge Company has taken about 12,000 tons of work in the first two weeks of June, and the total of the month promises to be considerably less than the average for the preceding five months. Some office building contracts in the Central West are pending. The Steel for the Maison Blanche, at New Orleans, about 6500 tons, has been awarded to the Brown-Ketcham Iron Works, Indianapolis, Ind. Bridge Commissioner Stevenson of New York awarded the contract for the Steel work of the Manhattan bridge on last Saturday to the Ryan-Parker Construction Company, this company's bid of $6,493,223 being the lowest. Under the terms of the contract the Steel work must be finished by December 15, 1909. There is some curiosity to know the Steel works connection of the successful bidder. Mills continue to make better deliveries on structural contracts. Some sizes can be had in 30 days, while on others 60 to 90 day deliveries are the best that can be promised. Buying is rather freer from the general run of consumers, but fabricating firms note that inquiries are not so plentiful. It is a between-seasons period, and a renewal of activity on a large scale is not looked for before fall. A good deal of work is yet to be placed in New York if pretty definite plans already announced are carried out. We quote on tidewater deliveries the following prices for shipments from mills: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb Angles and Deck Beams, 1.99½c. On Beams 18 to 24 inches the extra is 0.10c., and on Angles over 6 inches, 0.10c. Beams and Channels out of stock are sold at 2½c. German Structural Steel manufacturers show no immediate interest in American business, and their quotation is now £6, f.o.b. Antwerp, whereas the last business done with the United States was placed at £6, c.i.f. New York.

Bars.—Sales agents report a limited volume of business, with sales seldom running over 100 tons. While leading Bar Iron manufacturers maintain the official price of 1.64½c., tidewater, New York, concessions are being made by others; but even in such instances not much business is induced. The Eastern Bar Iron manufacturers will hold a meeting in this city on Thursday, at which the condition of business will be considered and possibly some action taken regarding prices. Steel Bars are quoted without change at 1.64½c., tidewater.

Plates.—Seldom has the local demand been so light as at present. Consumers of Plates in this vicinity are very slack of work, and some large establishments report that they have never in their history been so bare of orders as at this time. Fortunately the Eastern Plate mills are securing a satisfactory business from other localities. Quotations are maintained as follows at tidewater: Sheared Tank Plates, 1.74½c. to 1.84½c.; Flange Plates, 1.84½c. to 1.94½c.; Marine Plates, 2.14½c. to 2.24½c.; Fire Box Plates, 2.24½c. to 2.60c., according to specifications.

Cast Iron Pipe.—The situation from the buyer's standpoint steadily grows worse instead of better. The demand for early delivery is insistent, but it appears impossible to find any foundries in a position to promise deliveries of even small lots before September. Wouldbe purchasers are offering premiums above recent asking prices in the hope of tempting manufacturers to arrange to take their business. The expected Philadelphia letting on June 12 for about 40,000 tons of Pipe and Specials resulted in the receipt of only one bid, and that was not according to the specifications; hence no contract was awarded. If any manufacturer were able to make early delivery of Pipe it would be an easy matter to secure $32 per net ton at tidewater for carload lots of 6-inch.

Old Material.—While the demand for Cast Scrap and other foundry stock is excellent, transactions have been exceedingly limited in other classes of Old Material. Consumers appear to be taking a concerted rest until some time after the closing of the half year. Dealers are not looking for a better market until some time in July or August. Approximate prices per gross ton for New York and vicinity are as follows:

Old Iron Rails	$19.50 to $20.50
Relaying Rails	25.50 to 26.00
Old Steel Rails, rerolling lengths	16.00 to 16.50
Old Steel Rails, short pieces	14.00 to 14.50
Heavy Melting Steel Scrap	14.00 to 14.50
Standard Hammered Iron Car Axles	23.50 to 24.00
Old Steel Car Axles	18.50 to 19.50
No. 1 Railroad Wrought	17.50 to 18.50
Iron Track Scrap	15.50 to 16.50
No. 1 Yard Wrought, long	16.00 to 16.50
No. 1 Yard Wrought, short	14.00 to 15.00
Wrought Pipe	12.00 to 12.50
Light Iron	9.00 to 10.00
Cast Borings	8.00 to 8.50
Wrought Turnings	11.00 to 11.50
Old Car Wheels	16.00 to 17.00
No. 1 Machinery Cast	14.00 to 14.50
Stove Plate	11.00 to 11.50
Grate Bars	9.00 to 9.50
Malleable Cast	15.00 to 15.50

The molders employed at the works of the International Steam Pump Company, Cambridge, Mass., have gone on strike, their demand being the same as that in other foundries of Boston and vicinity, a flat advance of 25 cents a day.

Metal Market.

NEW YORK, June 20, 1906.

Pig Tin.—Business during the week has been dull, being chiefly confined to small orders for immediate shipment. On Thursday of last week Tin sold at 38.70c., while on Friday it was so dull that no accurate gauge of the market could be obtained. Monday of this week sales were made at 38.85c. and Tuesday at 38.75c. To-day's price is easier at 38.60c., due to the lower London price of £175 5s. for spot and £175 for futures. The statistical position favors consumers, although Powell's Returns for shipments from the Straits for the first half of June were not as large as expected. They were, however, slightly over shipments during the corresponding period last year. The arrivals at this port for the first 19 days of the month aggregate 2550 tons, and there are 2351 tons afloat, 350 tons of which will arrive during the next week. Business in England and on the Continent has been small, as the high price in that country affected consumption more than here, it being well known that Tin is more used for domestic purposes in Europe than in this country. Stock in store in this city is increasing, and it is believed in view of the small business so far this month that the end of the month will show a large increase in the supplies.

Copper.—A decline of £2 5s. in spot Copper in London influenced sentiment, and we revise quotations as follows: For spot and nearby Lake 18.62½c. to 19c., future shipments being held at 18.62½c. to 18.75c. Spot Electrolytic can be obtained at 18.62½c. to 18.75c., while deliveries in August and September are offered at 18.50c. to 18.62½c. The wide range of 18c. to 18.50c. covers the prices on all grades, and all deliveries of Casting Copper. It should be borne in mind that premiums were demanded for May and June Copper, but these deliveries being no more in demand these advances have disappeared. It is stated that Calumet & Hecla Copper is held at 19c. for all deliveries except September. As was to be expected, the easing of prices had a depressing influence on trade, and there was little business transacted either for domestic or foreign account. The London market closes to-day at £84 10s. for spot, and £81 2s. 6d. for futures; Best Selected at £87 15s. The exports for the first 19 days of this month are 11,290 tons.

Pig Lead.—The tone of the market is slightly easier, due to heavy arrivals of foreign Lead. Sales of foreign and domestic Lead have been made on the basis of 5.90c. to 6c., according to brand, f.o.b. New York City. Foreign Lead can now be obtained at a slight concession under domestic on the Atlantic seaboard. The St. Louis market is steady at 5.90c. During the present importing movement about 1750 tons have arrived from Europe. It is interesting to note in this connection that 200 tons of Antimonial Lead were exported on the 19th. This grade of Lead commands a high price at the present time, on account of the Antimony it contains. The American Smelting & Refining Company continues to quote 50-ton lots of Desilverized Lead at 5.75c.; Corroding at 5.85c. This price only governs existing contracts, future business being taken at the price current on date of shipment. The London market is slightly easier at £16 15s.

Spelter.—There has been a fair demand for Spelter and prices are firmer, spot being held in this market at 6.25c. In St. Louis it is firmly held at 6.10c. to 6.15c. The London market is practically unchanged at £27 10s.

Quicksilver.—The market is steady, flasks of 75 lbs. in lots of 100 flasks being held at $41 per flask and $42 for small lots.

Antimony.—Prices are dull and unsteady, Cookson's and Hallett's being held at 24c. to 25c.; other brands at 23c. to 24c. There is apparently no Japanese Antimony in this market. In the London market Hallett's is sold at £120; ordinary brands are also offered at concessions, the price being £115.

Nickel.—The market is steady, large lots being held at 45c. to 50c.; smaller quantities at 50c. to 65c.

Tin Plate.—Business in Terne Plates is very dull and there is no marked animation in the Coke Plate trade, the larger buyers having well covered their requirements when prices were 15c. to 25c. a box lower. There are a number of mills not operating at present, due to a shortage of Tin Plate Bars. For 100-lb. IC Coke Plates $3.94 is quoted, f.o.b. New York, and $3.75, f.o.b. Pittsburgh. In Swansea Welsh Plates are 3d. lower at 13s.

Old Metals.—All kinds of Copper Scrap are in active demand. Old Lead and Brass are also sought by dealers. Business is dull, as there is very little material to offer, but such sales as have been made have been at about the following range of prices:

	Cents.
Copper, Heavy Cut and Crucible	18.00 to 18.25
Copper, Heavy and Wire	17.75 to 18.00
Copper, Light and Bottoms	16.00 to 16.25
Brass, Heavy	12.50 to 12.75
Brass, Light	10.50 to 10.75
Heavy Machine Composition	16.50 to 17.00
Clean Brass Turnings	11.50 to 11.75
Composition Turnings	13.50 to 14.00
Aluminum Scrap	26.00 to 28.00
Lead, Heavy	5.45 to 5.60
Tea Lead	5.20 to 5.35
Zinc Scrap	4.90 to 5.00

Iron and Industrial Stocks.

NEW YORK, June 20, 1906.

Dullness and some degree of weakness characterized the stock market the past week. Prices showed a general sagging tendency for the greater part of the week, with particularly depressing conditions on Saturday and Monday, after which an improvement occurred. The range of prices from Thursday to Tuesday, inclusive, on the active stocks were as follows: Car & Foundry common 38½ to 40¾; Locomotive common 69½ to 71⅞; Steel Foundries preferred 45 to 46½; Colorado Fuel 51¼ to 56⅜; Pressed Steel common 47¾ to 51½; Railway Spring common 51 to 52¼; Republic common 28½ to 30½, preferred 99 to 100 ex. div.; Tennessee Coal 153 to 155; Sloss-Sheffield common 73 to 77; Cast Iron Pipe common 49½ to 50½; Steel common 37¾ to 40⅛, preferred 103⅝ to 104¾; Can preferred 58⅞ to 62. Last transactions up to 1.30 p.m. to-day were reported at the following prices: Can common 7, preferred 57¾; Car & Foundry common 40, preferred 100⅛; Locomotive common 72, preferred 116; Steel Foundries common 11¾, preferred 46; Colorado Fuel 53½; Pressed Steel common 49¼, preferred 98; Railway Spring common 53; Republic common 29¼, preferred 100; Sloss-Sheffield common 74¼; Tennessee Coal 154½; United States Steel common 38¾, preferred 104⅝.

Effingham B. Morris, chairman of the Board of Directors of the Cambria Steel Company, is reported as making the following statement in reference to the reports that the dividend is to be increased: "It is desired to spend at least $5,000,000 in betterments and extensions before any dividend increase is considered. These expenditures will cover all parts of the plant, so that each department may be balanced in proper relation to the other. If during the next two years earnings should increase so phenomenally as to warrant an increased dividend, after paying for these expenditures, it would, of course, be considered, but it is the first wish of the managers to put and keep the plant in proper condition." It is proposed to build a blast furnace at Johnstown costing $1,000,000, the water plant for which will cost $2,000,000. Other improvements will cost another $2,000,000. It is understood that of the required $5,000,000 about $3,000,000 cash is now in bank. All this money comes from earnings.

Dividends.—Tennessee Coal, Iron & Railroad Company has declared the regular quarterly dividend of 1 per cent. on the common and 2 per cent. on the preferred stock, payable August 1.

Empire Steel & Iron Company has declared a semi-annual dividend of 1½ per cent. on the preferred stock, payable July 1.

American Iron & Steel Mfg. Company has declared a quarterly dividend of 1¼ per cent. on the preferred and 2 per cent. on the common stock, payable July 2.

Westinghouse Air Brake Company has declared the regular quarterly dividend of 2½ per cent. and the usual extra dividend of 2½ per cent., both payable July 10.

Otis Elevator Company has declared a quarterly dividend of 1½ per cent. on the preferred stock, payable July 16.

Central Coal & Coke Company has declared a quarterly dividend of 1¼ per cent. on the preferred and 1½ per cent. on the common stock, payable July 16.

International Nickel Company has declared a quarterly dividend of 1½ per cent. on the preferred stock, payable August 1.

Robert B. Armstrong, president of the Casualty Company of America, New York, and former Assistant Secretary of the Treasury, was the principal speaker June 13 before the convention of the Iowa State Bankers' Association, at Cedar Rapids, Iowa. Mr. Armstrong sounded a note of warning against the present agitation against corporations as dangerous to the nation's prosperity. He said: "One of these mornings you will miss prosperity at breakfast. There will be many excuses for her absence from her usual place. One will say 'bad crops,' another will say 'overproduction,' another will say 'abnormal extension of credits.' But none of these will be the real reason, though they may be contributory. The real reason will be an epidemic of fear, of timidity, of distrust, produced by unwarranted, continuous attacks upon every instrument of progress and development which has made and is making this country great."

The Indiana Steel Company's New Plant.

The immediate erection and completion of one finishing unit, the rail mill, with sufficient blast furnace and steel works capacity to provide for its requirements, and the installation of other finishing units as required, with their raw material accessories, is the scheme that has been adopted for the development of the plant of the Indiana Steel Company, a subsidiary company of the United States Steel Corporation, at Gary, Ind.

The rail mill, which is now being designed, is to have a capacity of 75,000 tons a month, or 900,000 tons a year. The four blast furnaces which are to be immediately erected will have a daily output of 18,000 tons and the 28 60-ton open hearth furnaces 3000 tons. As the rail mill will require nearly 3000 tons of steel per day there will be no surplus, and the pig metal output is also well adjusted and provides for about a 40 per cent. admixture of scrap. The blast furnaces under way are in the center of the ultimate group of 16, and the two open hearth units are similarly located in the group of six open hearth plants, which will ultimately contain 84 furnaces.

The contracts for the erection of the stoves and furnaces have already been awarded the Riter Conley Mfg. Company, Pittsburgh.

The stacks will be 90 feet high and will have a bosh diameter of 21 feet 6 inches. From these dimensions it is apparent that they have been designed with a view to the use of a fairly heavy percentage of fine ores. Each furnace will be provided with four stoves, 100 feet high and 22 feet in diameter. Gas driven blowing engines will furnish air to the stacks, but these contracts have not yet been awarded.

Each of the two open hearth buildings will be 1200 feet long and 200 feet wide and will contain 14 furnaces each. The type of the gas producers has not yet been decided upon, although it is probable that four or five will be required for each furnace, making a possible immediate installation of either 112 or 140. They will adjoin the open hearth furnace, running the whole length of the buildings. The general arrangement of the plan provides for sequence of material from the crudest form of raw material to the finished product. Thus, the coke ovens are located at one end of the plant and are separated from the blast furnaces by a channel and the intervening ore yard. The open hearth group follows, then the heavy product mills and at the other end the lighter finishing mills will be located.

A channel nearly ¼ mile long and 250 feet wide will be built into the property from Lake Michigan. On one side of the by-product coke ovens will be built, with all necessary facilities for unloading the coal from lake boats. On the opposite side of the channel is located the ore yard, paralleling the docks their entire length. A space about 600 feet wide has been provided between the edge of the dock and the furnaces for the unloaders, ore stock yard and furnace ore and coke bins. The ultimate group of 16 blast furnaces are arranged in a line parallel to the channel, and the pig casting machines are to be built within easy reach of the furnaces. Two are now being figured on for the four furnaces under way. The open hearth group, to consist of six batteries of 14 furnaces each, are located next to the blast furnaces, and the buildings are laid out at a slight angle to the channel. Tracks from the furnaces to the open hearth building will be utilized in conveying the hot metal in ladles to the charging floors of the steel furnace. All of the finishing mills are laid out at right angles to this channel. The ingot strippers are in a line that again parallels this waterway.

The heavy product mills adjoin the open hearth furnaces with the rail mill at one end and with billet, structural and plate mills in the order named. Immediately in front of the structural mill a blooming mill is provided, and likewise a slabbing mill for the plate mills. After the rail mill unit is completed it is probable that the erection of the plate mills will be proceeded with. The largest mill is designed to roll sheared plates up to a width of 160 inches, while the smaller universal mill will roll up to 48 inches. The plan also shows three plots for the erection of heavy produce mills in the future, adjacent to the group already mentioned. A group of five 8 to 20 inch merchant mills is next shown, and ample room is provided for the erection of five additional. However, none of the merchant mills has yet been designed, nor has it been decided to erect them in the immediate future.

Adjoining the rail mill is the shop group, which includes roll and machine shop, 15 x 400 feet, blacksmith, boiler, carpenter and pattern shop, and the storehouse. Plans are now under way for the erection of a large office building, where the operating heads will have their headquarters. The course of the Calumet River, which runs into the property and cuts off a portion of the designed open hearth plant from the main property, is being changed, and this work entails a large amount of digging and filling. The channel and ore docks with necessary unloading equipment are to be completed early next spring, in time to receive lake ore shipments upon the opening of the navigation season.

The rail mill is to be completed in time for rolling 1908 requirements and it is probable that the blast furnoces will be blown in the fall of next year. The work of laying out the residence section of the city is progressing favorably, but owing to the large amount of work entailed not many of the homes will be available this year.

Judge A. B. Anderson of the United States Court at Indianapolis, Ind., has granted an order restraining 356 striking machinists from picketing factories where there are strikes in that city and from interfering with nonunion workmen. The complainant was the Pope Motor Car Company, but the companies interested include the Sinker-Davis Company, the Indianapolis Rubber Company, the Jenney Electric Manufacturing Company, the Ewart Manufacturing Company, Hetherington & Berner, F. W. Spache Machine Company and others. The men went out on the refusal of an increase in wages. The complaint of the companies shows that the latest and most approved plans of picketing plants and interfering with nonunion employees are employed by the strikers. At times as many as forty pickets surrounded the motor plant and many of the strikers carried kodaks to get the pictures of the nonunion workers, with which it is hoped to keep them from getting work in other cities where there are unions.

The Senate at Washington spent June 16 in debating the bill to incorporate a company of Pittsburgh capitalists to build a ship canal connecting Lake Erie with the Ohio River. Senator Patterson opposed the bill, expressing the opinion that steel companies are behind the enterprise with the object of obtaining cheaper iron ore. One of the objections urged by the opposition was that no limitation was put on the capitalization of the proposed company. On June 18 the bill passed the Senate, 41 to 11. An amendment to limit the indebtedness of the company to the amount of money paid for stock at par was tabled, 30 to 15. Amendments adopted make the property of the company subject to State taxation, give the Interstate Commerce Commission supervision over rates for transportation and relieve the United States from all liability on account of the canal.

The District Council of the Brotherhood of Carpenters, representing the Brotherhood men throughout Greater New York, ratified the settlement reached June 15 under which the lockout of the carpenters ended Monday. The Brooklyn carpenters receive the 30 cents a day advance agreed to on July 1, and on August 15 their wages will be raised to $4.50 a day. The wages of the Manhattan carpenters will be raised from $4.50 to $4.80 a day on July 1.

OBITUARY.

CHARLES C. NEWTON.

The death of Charles C. Newton, president and treasurer of the Newton Machine Tool Works, Incorporated, Philadelphia, at Bremen, Germany, June 13, is announced by cable. He had not been in good health for some time and had gone to Europe to seek relief at the baths at Bad Nauheim, Germany, but was too ill to continue his journey after his arrival at Bremen, nine days previously.

Mr. Newton was born February 9, 1846, at Cambridge, Washington County, N. Y., and at the age of 19 he indentured himself as apprentice to the Brooks Locomotive Works at Dunkirk, N. Y., spending most of his time in the tool room. After serving his apprenticeship and working in various shops, Mr. Newton returned to Dunkirk in 1875 and, in partnership with J. D. Cox, manufactured twist drills, reamers, cutters, &c., removing to Cleveland, Ohio, in 1876, to broaden the scope of their work, which had largely increased, operating under the firm name of Newton & Cox. In 1880 Mr. Newton sold out his interest to Mr. Cox, who formed out of the old firm the Cleveland Twist Drill Company.

Removing to Philadelphia Mr. Newton laid the foundation for the present Newton Machine Tool Works in a little shop at 2341 and 2343 Callowhill street, with only himself and an assistant as the working force. In this shop he designed the first heavy railroad tools, and as the demand grew for his various designs he was forced to seek larger quarters. In the fall of 1886 he built a new shop at the corner of Twenty-fourth and Wood streets and there designed the first machines for sawing metal cold and also a large number of new tools, for which he took out patents. As this shop soon became too small Mr. Newton built in August, 1895, the first part of the present shop, on the corner of Twenty-fourth and Vine streets, which he has since increased to take in the entire square bounded by Twenty-third, Twenty-fourth, Vine and Wood streets.

Mr. Newton was the sole proprietor of the works until July 14, 1897, when articles of incorporation were taken out, not with a view of increasing the capital, but as a business move, and the firm became the Newton Machine Tool Works, Incorporated, with Mr. Newton as president and treasurer. He was a member of the Engineers' Club and of the American Society of Mechanical Engineers.

JAMES M. HODGE, treasurer of the Empire Steel & Iron Company, Catasauqua, Pa., died suddenly June 16 at the age of 73. He had suffered for some time with asthma. Mr. Hodge was graduated from Union College, Schenectady, N. Y. For three years he was professor of natural sciences at the Fort Edward Institute, New York, and for two years held the same chair at Kingston Seminary, near Wilkes-Barre. He then entered the service of the Pennsylvania Railroad Company, and for 20 years was its claim agent, with headquarters at Philadelphia. In 1890 he was elected treasurer of the Crane Iron Company. In 1896, when the Empire Company was organized, he was continued as treasurer, moving to Catasauqua.

FRANCIS W. WEBB, who was chief mechanical engineer of the London & North Western Railway from 1871 to 1902, with complete control over the Crewe shops, died June 4. He was one of the most progressive of English engineers, and was widely known in the United States.

J. E. MATHEWSON, managing director of Tilghman's Patent Sandblast Company, died at Altrincham, England. He introduced the sandblast process into England from the United States. He was engaged in 1869 at Philadelphia with B. C. & R. A. Tilghman, the sandblast apparatus originating with B. C. Tilghman and Mr. Mathewson. In 1873 Mr. Mathewson went to England, becoming manager of the engineering department of the Tilghman Company in 1874.

L. Vogelstein, New York, sailed June 12, for a three months' business trip in Europe.

The Master Mechanics' Convention.

The thirty-ninth annual convention of the American Railway Master Mechanics' Association was held in Atlantic City, N. J., this week, the sessions continuing from Monday to Wednesday. The attendance broke all records, far surpassing any previous meeting of the association. President Herman F. Ball of Cleveland delivered a most interesting address, from which the following extracts are taken:

"The rapid growth in power which marked the development of the locomotive in the past few years, and by which great economies of operation are being obtained, has apparently been arrested by the limitation of clearances, capacity of the firemen, and the reaching of the practicable train length limit. It would, therefore, appear questionable to look for further economies, as a general proposition, by continuing to enlarge the locomotive, under present conditions. The solution of the problem lies in other directions. We shall be required to develop the mechanical stoker. Compounding and superheating will be prosecuted with greater vigor than ever. The use of a feed water heater may be resorted to, and among the smaller items undoubtedly the compound air pump will be used, and perhaps the variable exhaust nozzle. We now have engines that will run successfully from terminal to terminal, and have reached a plane in the economical maintenance of our locomotives whereby the use of the foregoing fuel saving devices will make more apparent than heretofore the economies resulting therefrom.

"Considerable thought and experiment have been devoted during the past year to the development of a motor car which could be used for branch line service, corresponding to the service furnished by the interurban electric car. The most promising field of effort has been the gasoline motor. Others have followed in the footsteps of our foreign friends and have experimented with steam, using oil for fuel. What the outcome will be cannot be conjectured at this time. It is safe to say, however, that with the demand for such a car in sight and American ingenuity at work, a satisfactory car will be evolved in due time."

The annual report of the secretary, Joseph W. Taylor of Chicago, showed a total membership of 834, of which 777 are active, 17 associate and 40 honorary. Angus Sinclair of New York, treasurer, submitted a statement as to the financial condition of the organization.

On Tuesday afternoon a visit was made to the Baldwin Locomotive Works, Philadelphia, on invitation, a special train being furnished by the Reading Railroad.

The Gayley Dry Blast on Low Phosphorus Iron.—An exceptional run on low phosphorus pig iron was made at Isabella Furnace No. 1 of the Carnegie Steel Company, which is running with the Gayley dry blast. The tonnage produced was about 8500 tons and the iron was more uniform and regular in sulphur and in phosphorus than that of any tonnage ever made by any of the other furnaces of the company. The consumption of coke, too, was lower by 280 pounds per ton than was secured at Edgar Thomson, when the same grade of iron was made there during November, 1905. Heretofore, when making low phosphorus iron it has been the practice, whenever possible, to select a practically new furnace, because the fuel consumption is lower and the working is more uniform than it is with an old furnace. Isabella No. 1, however, has not been relined or had a new bosh put in for four years, so that this circumstance is an additional point in favor of the work done by the furnace with the Gayley dry blast on low phosphorus iron.

William A. and Arthur Hawgood, Cleveland, Ohio, closed a contract during the week with the American Shipbuilding Company for an 11,000-ton steamer to be ready at the opening of next season. The new boat will be 552 feet over all, 532 feet keel, 56 feet beam and 31 feet deep. It will be of double hull construction and arch system, and will have 32 hatches. The boat will probably be built at Detroit.

The Machinery Trade.

NEW YORK, June 20, 1906.

It is difficult to decide from which branch of business the larger number of orders for machinery are coming in, as the buying seems to emanate from every direction and from every company that uses metal working machinery. During the past week some nice orders were placed that were not noted on any list, though they were of proportions that made them eligible to lists that many would have liked to have bid on. While these medium sized amounts of tools have been purchased in number none of the large lists are reported to have been closed, though the point of purchase of some of them has about been reached. The machinery merchants have within the past few days kept in close touch with the Baldwin Locomotive Works, and have made trips to Schenectady in the interest of the large specifications sent out by the General Electric Company. Both of these companies will undoubtedly make large purchases very shortly. There have been so many machine tool lists issued within the past few weeks that they are the center of interest in the trade. The most important among these in number of machines are, of course, the specifications sent out by the railroads. These have been further augmented since our last report, and at the present time no less than five large Eastern railroad lists are not yet closed, while an additional one is completed, and will probably be sent out in a few days. Add to these the two large industrial specifications and we have an almost unprecedented volume of pretentious inquiries before the trade. The profits of some of this business will be shared by the West, as many of the Eastern companies are agents for Western manufacturers. Reports from Chicago indicate that trade in that section of the country is keeping pace with the great activity here. The most important project on the tapis in the Western center is that of the Indiana Steel Company, which is considering the purchase of $1,500,000 worth of machinery. The Illinois Central Railroad is expected to issue a $125,000 list very soon, the tools being required for its Burnside shops.

The extensive requirements of the various railroads are due to a great extent to the policy of concentration of shops which has been adopted by many of the companies. There is undoubtedly a great advantage in centralizing the work, instead of having repairs made at several small shops along the line. A census bulletin has recently been issued, which shows that construction and repair work on steam railroads has materially increased, while the number of shops has decreased a considerable percentage. As this scheme of concentration is further carried out a greater demand for new machinery is created, as but little of the equipment of the small shops is transferred to the new.

Baltimore & Ohio Machinery Requirements.

The Baltimore & Ohio Railroad has issued its machine tool programme for 1906, which includes a large number of machines, some of them of the heaviest type. This machinery is required for renewals at the various shops along its lines, but it is probable that considerable of it will go into the new shops which the company recently built at Philadelphia. The following is the list of tools included in the programme:

One valve seat facing machine; one 36-inch vertical drill press; one 42-inch car wheel boring machine; one 200-ton hydraulic wheel press; one drill grinding machine to sharpen all sizes of twist drills and flat drills from 5-16 to 3 inches, inclusive; four 16-inch improved engine lathes, 6-foot bed; one 48 x 48 inch planer, with 16-foot lathe, two heads on cross rail and one on upright, parallel drive countershaft, etc.; one 24-inch engine lathe to take 8 feet between centers, complete with countershaft, etc.; one 48-inch hydrostatic wheel press; one 30 x 30 inch planer, with 8-foot table, two heads on cross rail and one on upright; one radial drill press, 5 arm; one 6000-pound double frame, 4-foot stroke steam forge hammer; one 1100-pound single frame steam hammer, 28-inch stroke; one 28-inch swing lathe, 10 feet between centers; one 20-inch swing lathe, 5 feet between centers; one 15-inch stroke shaper; one 30-inch planer, 12-foot bed, two heads on cross rail; one 12-inch slotter; one 8-inch slotting machine; two 18-inch swing lathes, 4 feet between centers; one improved nut facing machine; one double head axle lathe, motor driven, 500-volt, direct current; one triple head bolt cutter, to thread bolts ½ to 1¾ inches; two 16-inch bolt lathes; one No. 4 turret lathe for brass work; one car wheel boring machine, with five independent jaws in table; one 2½-inch double head bolt cutter, ¼ to 2½-inch bolts, two sets of dies, complete; one combination punch and shear, 36-inch throat, capacity to punch 1-inch hole in ⅞-inch sheet; one 15-inch fast feeding planer and matcher; one 48-inch hydrostatic wheel press; two flue welding furnaces; one double head pipe threading machine to thread pipe from ¼ to 1 inch; one double head pipe threading machine to thread pipe from ¾ to 2 inches; one six-spindle arch bar drilling machine, adjustable heads; one No. 3 tool grinder; three twist drill grinders; one 16-inch swing lathe; two 48-inch vertical drill presses; one 50-inch car wheel lathe; one four-spindle drill press, independent head; one 16-inch vertical drill press; one No. 2 vertical borer, with bits and countershaft; one planer and smoother, taking 6 x 20 inch lumber; one 60-inch radial drill press; one 12-inch single head, extra heavy slotter; one 30-inch radial drill press; one 14-inch swing portable lathe, motor driven, with 500-volt direct current motor; one double spindle journal brass boring machine, to bore brass from 5 to 8 inches, to bore four brasses at one chucking; one hydropneumatic mud ring riveter; one automatic molding machine, complete with pneumatic riddle, patterns, plates and flask; one foundry crusher and washing machine for grinding up crucibles; one automatic tool for brass work; one three-spindle boring machine and mortiser; one band saw; one shear for cutting off bolts; one 20 x 7½ x 18 inch milling machine; one 31-inch radial drill; two field winding drag wheels; one 2 x 24 inch flat turret lathe; one 42-inch car wheel boring machine, with crane, hub facing attachments, etc.; one double punching and shearing machine, 36-inch throat; one 40-inch boring and turning mill; one 42-inch engine lathe, 8 feet between centers, with usual attachment; one radial drill press to drill from 2 inches up; one 600-foot air compressor; one 200-ton car wheel press; one car wheel boring machine; one 1250-pound steam hammer, single frame; one 90-inch swing wheel tire turning lathe; one bolt cutter to cut to 1½ inches; one 3 x 36 inch turret lathe; one 36-inch throat punching and shearing machine; one extra heavy 90-inch swing wheel chucking lathe to take wheels 48 to 84 inches on tread and 92-inch swing; one car wheel turning lathe for turning steel tired car wheels, to swing 46 inches over bed, 7 feet 6 inches from center to center, total length over all 16 feet, 13-foot bed and 8-inch spindles; one 2-inch spindle centering machine; one No. 2 plain radial drill, complete with universal table; one 500-pound treadle steam hammer; one punching machine to punch 1-inch soft steel with 1½-inch hole; one 16-inch bolt lathe, 24 inches between centers; one 20-inch engine lathe, 36 inches between centers; one 36 x 36 inch planer, with two heads on cross rail; one double head bolt cutter to cut ⅜ to 2 inches; one 90-inch tire lathe; one 52-inch vertical boring mill, belt driven, with independent chuck jaw; one double punch and shear, 48-inch throat, belt driven, each side to work independently, combined shaft, etc.; one tool grinding and shaping machine; one tool grinding and shaping machine for machining tools; one 1500-pound open side steam hammer; one No. 2 horizontal hand feeding lumber mortising chisel; one 52-inch vertical boring mill, belt driven, with independent chuck jaws; two 2 x 24 foot lathes.

General Electric Company's Machine Tool List.

Specifications for a large amount of machinery have been sent out in the past few days by the General Electric Company, Schenectady, N. Y. The list covers a great many machine tools, which with the special machinery will aggregate in value about $125,000. The greater portion of this machinery is required for equipping the new addition to the company's turbine manufacturing department, which will be 150 x 800 feet, three stories high on one side, the main bay being one story. This building will contain approximately 240,000 square feet of floor space and will be of steel and brick construction. It is expected that the company will place orders very shortly for this machinery, as numerous merchants in the trade have already gone to Schenectady to consult with the purchasing agent concerning the tools on which they submitted bids. It is generally understood that the company intends to build further this year, especially at the Lynn works, and consequently it will probably come into the market later on for additional equipment.

New York Central to Issue Specifications.

There is every reason to believe that the trade will soon receive specifications for a large amount of machinery from the New York Central Railroad, which is understood to have a substantial list completed and about ready to send out. The Central has so many extensive improvements under way and contemplated that it will likely come into the market for a large amount of machinery before very long. In addition to its own requirements there are those to be considered for the Detroit tunnel and for the new shops of the Big Four at Indianapolis, Ind.

Although the Cleveland, Cincinnati, Chicago & St. Louis Railroad, one of the New York Central lines, has not fully perfected the plans and specifications for its new shops at Indianapolis, Ind., the outline in a general way shows that there will be 20 buildings erected, as follows: Machine and erecting shop, 320 x 550 feet; blacksmith shop, 126 x 340 feet; boiler shop, 126 x 564 feet; tank, pilot and cab shop, 76 x 504 feet; coach shop, 177 x 442 feet; paint shop, 177 x

442 feet; planing mill and cabinet shop, two stories, 85 x 304 feet; power house, 116 x 140 feet; store and office building, three stories, 76 x 244 feet; foundry, 104 x 254 feet; freight car shop, 153 x 450 feet; upholstering shop, 58 x 120 feet; brass finishing shop, 58 x 75 feet; varnish shop, 58 x 70 feet; paint stock and supply shop, 58 x 60 feet; dry kilns, 65 x 104 feet; dry lumber house, 47 x 302 feet; wheel shop, 76 x 125 feet, and pattern shop, 52 x 92 feet. The freight, storage and car yards about the new buildings will be 3½ miles long and will have a capacity of from 16,000 to 18,000 cars.

In the statement issued by President Cassatt of the Pennsylvania Railroad, is some interesting data regarding the amount of money to be spent in completing the enormous improvements under way in the vicinity of New York. It was originally estimated that this work, including the tunnels and new station, would cost about $50,000,000, but it appears that the work will cost considerably more than was originally estimated. At other points the company is making important improvements, and recently a contract has been let for a new shop and yard at Altoona, Pa.

The Central Railroad of New Jersey is preparing to build a large freight terminal at Elizabeth, N. J., which will be made the eastern terminal for all freight, and will be similar in many respects to the extensive freight terminal established by the Pennsylvania Railroad at Waverley, N. J. The company expects to establish freight yards 500 feet wide and 4000 feet long, and it is expected that it will entail an outlay of about $200,000. The terminal will be located along the main lines of the company's tracks, between Seventh and Schiller streets, near the heart of Elizabeth. All the plans for the company's plant have not been completed as yet, and the details are now being worked out. There will be a rather large power plant, as well as an extensive pumping plant. The machinery requirements will be quite extensive, and it is expected that work on the terminal will be begun very shortly. G. W. Besler, vice-president and general manager of the road, recently informed the Elizabeth City Council, through its Committee on Railroad Improvements, that work will be begun as soon as possible.

Important Improvements to Industrial Plants.

The Tennessee Coal, Iron & Railroad Company has mapped out improvements to its works at Ensley, Ala., which will necessitate the purchase of a large amount of mechanical equipment. The new work at that point will include the rebuilding of some of the furnaces and equipping them with new engines, boilers and other machinery, doubling the capacity of the open hearth department, alterations to the rail mill equipment, increasing the capacity, and the erection of a central electric power station for the entire Ensley group of works. There will be a large amount of power equipment purchased, as the furnaces and works are to be operated entirely by electricity. The generators are to be driven by gas engines operated by blast furnace gas. A number of cranes will be required, a large horse-power of boilers and a great deal of other equipment. For these improvements the company is to spend $2,500,000 within the next year.

The Republic Iron & Steel Company has appropriated $500,000 for improvements to the furnaces of the Pioneer Iron Company at Thomas, Ala. Two furnaces are to be overhauled, and new blowing engines, stoves and other equipment, including boilers, installed. Four of the blowing engines were recently purchased from the Allis-Chalmers Company, Chicago.

Extensive additions will be made to the Richmond Locomotive Works at Richmond, Va., which is a branch of the American Locomotive Company. It is understood that about $400,000 is to be spent on the plant, and the additions will include a 160-foot extension to the boiler shop, a large power plant and a large general shop, part of which will be used in increasing the company's output of steam shovels. There is a steam shovel department attached to the Richmond Locomotive Works now, but it is not a very large one. It is understood that the plans also include the rebuilding of some old structures, and altogether the plant will be increased to a size sufficient to allow for building about 360 locomotives a year and about 200 steam shovels. The machinery equipment has not been purchased as yet, it is understood, and the orders will probably be placed from the Virginia plant. The American Locomotive Company has been buying considerable machinery through its New York office of late for extensions to its various plants, and the company will shortly be in the market for an extensive list of equipment for its Canada plant, although the orders for that will be placed in Canada.

Some little machinery will probably be purchased later on by Gustav Schock, 341 East Fifty-ninth street, New York, who is to build an eight-story brick plant, 52 x 100 feet, on Fifty-sixth street. The plant will be devoted to the manufacture of brewers' machinery, in which work a great deal of machine tool equipment is used.

It is probable that J. G. White & Co., 43 Exchange place, will soon undertake another extensive railroad project in constructing a number of new lines of railroad for the Bolivian Government. Speyer & Co., the firm which has been financially interested in a number of projects which J. G. White & Co. have developed, has made the necessary legal arrangements with the Bolivian Government by which American capital will be furnished for a number of new lines to connect the large rubber country of the eastern district of Bolivia and the Brazilian dependency of Acre with the Pacific ports. According to plans approved by the Bolivian Congress the company building the roads will be capitalized at about $26,000,000, of which New York bankers will supply $14,600,000 and the Government will furnish the rest. While no arrangements have been made as yet with J. G. White & Co. for the building of the road, it is hardly probable that the contract will go elsewhere, because of the very close connection between the engineering concern and those who are to finance the venture.

The New York, Westchester & Boston Railroad Company has decided to let the contract for its proposed power plant out at one bidding as a blanket contract. It is expected that announcement will be made within a few days as to who secured the order, as when bids were taken several weeks ago the company received propositions for furnishing the plant as a whole and also separate propositions for furnishing the various equipment.

McClave, Rimmer & Co., 85 Liberty street, New York, have been awarded a contract for a 275 horse-power tandem compound engine, to be installed in connection with the Government's power plant at Fort Wood, N. Y. The same company has received contracts from T. H. Taylor & Co., Allentown, Pa., for a 150 horse-power tandem compound engine, and from the Lehigh Valley Coal Company for a 425 horse-power tandem compound engine and a 250-kw. generator to be used for mine haulage service at the company's Lost Creek plant.

Bids will be received on Thursday, June 28, at the office of the Department of Correction, 148 East Twentieth street, for furnishing all the labor and material required to install a 40-ton ice making plant on Hart's Island. The contract will include considerable power apparatus and other machinery that goes in the making up of a well regulated and up to date ice making plant.

Business Changes.

The Buffalo Forge Company and Buffalo Steam Pump Company will abandon their office in Columbus, beginning July 1, locating in Cleveland and Cincinnati, Ohio. A. J. Vance will have charge of their interests in the latter territory, and W. A. Rowe in the Cleveland district.

Catalogues Wanted.—W. C. Bond, P. O. Box 336, Victoria, B. C., desires catalogues and price-lists of lime and lime brick machinery.

Philadelphia Machinery Market.

PHILADELPHIA, PA., June 19, 1906.

Large specifications continue to be the features in the local machinery market, while the same lack of immediate business, particularly in small lots, which has characterized the market for the past few weeks is also prominent. The Baldwin Locomotive Works' list of tools has required a great amount of attention from both manufacturers and dealers, and while we are advised by the company that purchases of all the tools, except planers, have already been decided upon, the contracts covering them will, however, not be awarded until some time in the present week. The specifications of the Pennsylvania Railroad, which have been before the trade in part for several weeks, are also expected to be closed up, at least on some lines, at at early date, while the recent requirements of the Baltimore & Ohio Railroad, covering about 100 different tools, are also receiving a large amount of attention.

While inquiries for the general run of tools are comparatively good, business does not develop into orders as rapidly as might be desired. It is the opinion of most of the trade that long delayed deliveries, together with the recent advances in prices, have had a strong tendency to cause the deferment of contemplated purchases on the part of many of the small buyers, and have been largely responsible for the lack of orders for individual and small lots of tools which were so plentiful a few months ago.

There has been little change in the foreign demand. Manufacturers of the standard lines of machine tools have the capacities of their plants fully taken with domestic orders, and are not making a very determined effort for the foreign trade. In some lines of special tools and machinery makers are more aggressive and a fair volume of trade for export is being done. Those who have a more or less established trade abroad in machinery and power equipment specialties report the volume of business fully up to the average.

Sales of boilers and engines have not been extensive recently, although there has been a fairly good amount of inquiry, particularly for the medium powers. The higher as well as the lower powers do not seem to be in quite as good demand, although the outlook for future business is considered satisfactory. Second-hand boilers of the medium horse-powers have had a fairly good sale, as have also second-hand engines. Gas and gasoline engines, which have cut into the boiler and steam engine trade in the lower capacities to a considerable extent, have, it is reported, been in excellent demand and sales have been numerous.

The demand for second-hand machinery has been good. The advanced prices and continued delayed deliveries on new tools have forced prospective buyers in some cases to look for second-hand tools to meet their immediate wants. This, however, is sometimes quite difficult, as the market is bare of many of the most desirable tools in the average run of sizes.

Both gray iron and steel foundries continue fully occupied, there being no diminution in the demand for castings. In some cases machinery builders complain of the deliveries of gray iron castings, while it is fully understood that new business placed with the steel casting plants must as a rule be satisfied with long time deliveries.

The Master Car Builders' and Master Mechanics' conventions at Atlantic City, N. J., June 13 to 15 and 18 to 20, respectively, have claimed a large share of the attention of the machinery trade. Almost every manufacturer as well as dealer in this vicinity has been represented at the conventions, some of the former making very creditable displays of working tools and appliances on the Steel Pier, where the sessions of the associations were held, and which was in a very large part given to the display of machinery and railway appliances. Prominent among those in this territory who made exhibits were H. B. Underwood & Co., F. R. Phillips & Sons Company, Phillips-Laffitte Company, E. Harrington & Son Company, Incorporated, T. C. Dill Machine Company, Bordo Valve Company, P. S. Justice & Co., Merritt & Co., Morse Williams & Co., and the Royal Ventilator Company of Philadelphia, Pa.; Stoever Foundry & Mfg. Company, Myerstown, Pa.; Riverside Metal Company, Riverside, N. J.; Keystone Drop Forge Works, Chester, Pa., and F. F. Slocomb & Co., Wilmington, Del.

Barwood & Snider, machinery merchants, 367 Bourse Building, have been appointed agents in the Philadelphia territory by the Springfield Machine Tool Company, Springfield, Ohio, for its line of high grade lathes, shapers and special tools, and by the National Machine Tool Company, Cincinnati, Ohio, on a line of keyseating tools. They will also represent the Cincinnati Punch & Shear Company, manufacturing punching and shearing machinery; the New Haven Mfg. Company on a line of lathes, drills, planers and slotters, and the Geometric Tool Company with self opening dies and collapsing taps. The latter two concerns were formerly represented by the late J. W. Cregar Agency in this territory.

W. E. Shipley, Bourse Machinery Floor, has been appointed representative of Foote, Burt & Co., Cincinnati, in this territory for their line of Reliance bolt cutters, while the Vandyke-Churchill Company has been appointed sales agent for the H. G. Barr Drill Company, Worcester, Mass., for its line of drills. Both these concerns were formerly represented by the late J. W. Cregar Agency.

The Philadelphia Rapid Transit Company will shortly begin work on an addition to its power house at Thirty-second and Dauphin streets. This improvement is being made for needed facilities in the boiler rooms. No additional equipment will be required.

I. H. Johnson, Jr., & Co., Inc., are busy in all departments. Inquiries recently, while not as numerous as some time ago, are quite satisfactory, and a good share of orders is being received. A large amount of business is on the books and recent deliveries of lathes have been extensively made, including among others three carloads of tools to parties in New England. Several very heavy lathes with long beds have also been delivered to some of the large steel works in the western part of the State.

The Newton Machine Tool Works, Inc., has taken on a good volume of business during the past month, and notes a particular demand for its line of cold saw cutting off machines and slab milling machines, as well as heavy portable slotting and milling machines from the various electrical works. All departments of the plant are busy, and a number of deliveries of special tools have been made, including among others a 42-inch slotter with pneumatic clutch drive, for Pittsburgh parties, and a 72-inch rotary planer for a Western concern. Beam, bar, structural and combination cold saw cutting off machines have also been shipped to a large number of customers.

Hill, Clarke & Co., Boston, Mass., are to be represented in Philadelphia, Pa., by George H. Baush, who will likely open an office on the Bourse, where he will take charge of the principal agencies. Mr. Baush was formerly superintendent of the Baush Machine Tool Company, Springfield, Mass.

Chicago Machinery Market.

CHICAGO, ILL., June 19, 1906.

Equipment purchases for the open hearth plant, rail mill and blast furnaces to be erected at Gary, Ind., by the Indiana Steel Company, a subsidiary company of the United States Steel Corporation, are now under consideration. The open hearth building, which will be the largest of its kind in the world, is to be equipped with seven 125-ton ladle cranes, five 75-ton cranes and a number of smaller hoists. This plant will contain 24 50-ton open hearth furnaces, with provisions for adding 16 more as the finishing capacity is increased. These cranes will all be electrically operated and of the latest type of construction. Estimates on the installation of five charging machines are also being asked for to serve the charging floor of this plant. Builders of rolling mill machinery are also preparing plans and estimates on the entire equipment for the rail mill, including blooming mill, hydraulic shears, cut off saws, punching machines, cooling beds, transfer and tilting tables and the rail mill proper. The entire cost of this equipment will not fall much below $1,500,000, and mill builders are competing keenly for this work. The various plans when presented will undoubtedly be representative of the latest and best practices in steel rail manufacture, and the rated capacity of the mill will not fall far short of 1,000,000 tons a year. This will be more than 150,000 tons in excess of the best record established by the rail mill of the Edgar Thomson steel works, and no efforts are being spared to make this the best of its kind in the world. While the contracts for the ore handling equipment for the four blast furnaces which are to be built immediately have not as yet been let, it is probable that Hulett unloaders will be installed, and two bridges of the Hoover & Mason type, to be built by Hoover & Mason, contracting engineers, Chicago, will be used for conveying the ore to the stock piles and bins. The ore bins will probably be of the parabolic type built by the Brown Hoisting Machinery Company, Cleveland, Ohio, whose most noteworthy installation of this type was made several years ago at the blast furnace plant of the Clairton Steel Company, Clairton, Pa. Gas engines, to be operated by waste gas from the blast furnaces, are to be installed for furnishing the air to the stacks. For the initial installation 12 will be required, but as the plans provide for an ultimate group of 16 furnaces the engine plant will consist of 48 units. Plans for these engines have already been submitted to builders for estimates and the contracts are to be awarded shortly. As the rail mill is to be ready for operation on 1908 rail orders the indications are that the contracts for the entire equipment will not be awarded to one concern, but will be subdivided, so that all possibility of delay in the delivery of machinery will be avoided.

Announcement has just been made by the Inland Steel Company, Chicago, of its intention to build two blast furnaces adjoining its present plant at South Chicago. The project is still in embryonic stage, but will undoubtedly include the installation of several mills to provide for increased finishing capacity. The furnace equipment will include ore docks, ore handling machinery, ore and coke bins, boilers and blowing engines. Two 100-ton cranes are now being installed in this company's open hearth plant by the Morgan Engineering Company, Alliance, Ohio.

The American Steel Foundries, Chicago, has now under construction large additions to its Granite City, Ill., plant. An extension, 75 x 250 feet, is being made to the main foundry building, and a new machine shop is being erected, 60 x 200 feet, the old structure having been torn down to provide room for this new department. No new tools were added to the machine shop equipment, as machinery located in various parts of the plant as well as that contained in the old shop will be assembled in the new department. Eight electric traveling cranes purchased from the Whiting Foundry Equipment Company, Harvey, Ill., will be installed in the foundry and machine shop. Two are of 35 tons capacity, with a span of 75 feet, and the remaining six have a capacity of 5 tons each. Additional cleaning machinery will also be installed in the cleaning room, and the power equipment has been increased by the addition of a 500-kw. General Electric Company generator, direct connected to a Hamilton-Corliss engine.

Illinois Central Railroad to Issue Large List.

The Illinois Central Railroad is sounding the market on a list of machinery for the Burnside shops, aggregating in cost $125,000. The list includes water tube boilers, engines, boring machines, drill presses, lathes and other machine shop equipment for installation in a new freight car erecting

shop and supplementary equipment for present buildings. The freight car erecting shop will be one story, 120 x 574 feet, of concrete, brick and steel construction. The above list of machinery will be submitted to the trade shortly.

The Chicago, Milwaukee & St. Paul Railroad is in the market for a 5-ton locomotive traveling crane for its West Milwaukee shops.

The Whitman & Barnes Mfg. Company, Chicago, will add considerable machinery to its plant at West Pullman and an addition is to be made to the wood working shop. Two automatic grinders will be required for the lawn mower department, as well as two box nailing machines in the shipping department. The addition to the wood shop will comprise approximately 2000 square feet, and a dry kiln will also be built, 20 x 40 feet. Four saws of special types will be added, as well as shaving exhaust apparatus. Considerable new machinery is also being installed at the present time, including three Niles-Bement-Pond hammers, of 1500, 2000 and 2500 pounds capacity each. Two large trimming presses have also been purchased from the E. W. Bliss Company, Brooklyn, and the six boilers are being equipped with Green automatic stokers, manufactured by the Green Engineering Company, Chicago.

The Wessinger Company has been incorporated at Duluth, Minn., and is now building in West Duluth an engineering and manufacturing plant to cost $40,000, for the manufacture of steam specialties and appliances, as well as for conducting a general machinery business. The machine shop for this plant will be 46 x 157 feet, with a power plant building 46 x 57 feet. The machine shop equipment, consisting of lathes, planers, shapers, drill presses, bolt cutters and other machinery, has all been purchased from the F. E. Satterlee Company, Minneapolis, Minn. In the power plant there will be installed two 54-inch by 16-foot tubular boilers, an engine direct connected to a 55-kw. generator and the necessary motors. This equipment has not yet been purchased. An 8-ton hand traveling crane will also be installed in the machine shop.

John Frantz, Joliet, Ill., is in the market for a screw cutting lathe, 12, 13 or 14 inch swing, with short or medium length of bed.

The Parker Hoist & Machine Company, Chicago, will buy a second-hand milling machine.

J. P. Agnur, Chicago, is in the market for a second-hand railroad cut off saw and also a portable boiler and engine.

The McClintock Mfg. Company, St. Paul, Minn., is in the market for a second-hand universal back geared milling machine.

The Arnold Company, Chicago, formerly located in the Marquette Building, is moving into new offices in the Borland Building, at the corner of La Salle and Monroe streets. The entire sixteenth floor will be occupied, providing larger and more desirable office facilities for the business, which will be continued along the following lines: Designing and constructing electric power stations, complete interurban railways, hydro-electric and transmission plants, &c.

The Armstrong Mfg. Company, Bridgeport, Conn., has opened a branch office and wareroom at 23 South Canal street, Chicago, which is in charge of Hugh S. Laing, formerly assistant manager of the New York branch. In addition to the line of stocks and dies there will be carried a full line of pipe cutters, pipe vises, bard attachable bushings, ratchet attachments for die stocks and pipe wrenches. In the salesroom a full line of pipe cutting and threading machines, taking up to 6-inch pipe, are on exhibition.

New England Machinery Market.

WORCESTER, Mass., June 19, 1906.

Early last week there was so noticeable a falling off in the demand for machine tools that some of the Boston dealers, as well as those of the smaller cities of New England, believed that the usual summer let-up in business had arrived. May had been a record month with most of them, and the slump was the more marked in consequence. It has turned out, however, that the little depression was only temporary, like those which have come before since the period of great demand has begun, and this week has seen a return to much the same prosperous conditions which prevailed during May. It does not follow that the summer will not see a hot weather quiet, but up to the present the dealers have noticed few enduring signs of it.

It is frequently stated that the long deliveries are hindering business with the dealers. If this is so, one has to wonder what their business would be if they could make prompt shipments. It is true that many orders have been held up on this account, but on the other hand the buying has been stimulated in some instances, for there are many manufacturers so optimistic that they believe their business will be as good a year hence as it is to-day. They argue that with the immense and growing trade of the country, the better control of conditions as governed by the stock market, the consecutive seasons of good crops and the general prosperity in every line of business cannot but act to prevent a serious slump in demand for a long time to come. Consequently they are buying machinery for delivery more than a year hence. In the case of one of the largest of the New England machine tool establishments the company refuses to quote a date of shipment on some of its machines, for the reason that a year and more hence conditions may change in its works, so that deliveries might not be made on the agreed time; or, on the other hand, deliveries might be better than can be now planned for, for some such cause as a cancellation of existing orders.

Manufacturers see every prospect of a summer without cessation of orders. Deliveries keep crawling further away. There are probably fewer cases of disappointment of customers, because greater care is being taken to make no promises of delivery which cannot be kept. The custom of granting vacations to employees has been so well established that most of those who have done so in other years will shut down their works as usual, though with the greatest reluctance, realizing that a fortnight, or even a week, will mean the loss of a great deal of money, far more than can be saved by the greater efficiency which comes with a complete overhauling of the works.

The New York, New Haven & Hartford machine tool list for the new locomotive repair shops at Readville, Mass., has been materially amended since it was sent out a week ago, various tools having been removed and others inserted. This has led to delay in furnishing figures. Many dealers and manufacturers who have been following this list are not wasting time hustling for the business, because they know that practically every tool was decided upon before the list left the engineering department.

The auction sale of the plant of the Shaw Machinery Company, Lowell, Mass., manufacturer of worsted machinery, which was set for to-day, has been postponed by order of the United States Circuit Court. The plant was to have been sold in its entirety, which might have prevented the distribution of a large amount of machine tools. To-morrow there will be a hearing on the affairs of the company, which is in bankruptcy, and there is a possibility that the court will order the sale of the plant and equipment in separate lots. A creditors' petition asking for such action will be acted upon, but there appears to be a probability that more time will be given in the hope of an agreement between creditors and stockholders under which the business would be resumed. Consequently the chance which many machinery dealers and users of machine tools are hoping for of an opportunity to bid on the machine tools is no more than even. Many of the machines, all of which are practically new, are entirely out of the market under a year's delivery. The dozen milling machines, several automatics, various grinding machines and some other tools cannot be bought in the market under 15 months' delivery. It is believed that an auction would bring together one of the largest crowds of bidders that ever attended a machinery sale, and that some of the machines would command a premium above the prevailing market prices for new tools.

The International Power Company, New York, has purchased of Charles F. Herreshoff his patent rights on an alcohol combustion engine, and will manufacture it at either the Bridgeport, Conn., or Providence, R. I., plant of the American & British Mfg. Company. Mr. Herreshoff, who is one of the family of shipbuilders of Bristol, R. I., has been developing his engine for some time and has recently been conducting extensive experiments and tests in marine usage at Bridgeport, with eminently successful results, it is stated. The purpose is to manufacture the engine for marine purposes, with special attention to naval use in torpedo boats and other craft where very high speed is required and where economy of weight in engines and fuel would greatly increase the radius of action.

The Bridgeport Malleable Iron Company, Bridgeport, Conn., has had plans prepared for an extensive addition to its plant, but it is not definitely settled that the new building will be erected this season.

The Standard Company, Torrington, Conn., manufacturer of spokes, nipples and other bicycle goods, is to build new works, consisting of a one-story building, 77 x 290 feet, and a boiler house, 42 feet square.

John T. Hyde, president and general manager of the Bath Iron Works, Bath, Maine, states that there is absolutely no foundation for the report that the works have been sold to Charles W. Morse, nor have there been negotiations to that end. The rumor had it that Mr. Morse would incorporate the plant in his plan of consolidation of his steamship lines.

The Boston Pressed Steel Company, Worcester, Mass., has been organized to manufacture pressed, drawn and stamped metal goods. The company succeeds to the business of the Eastern Stamping Company. The factory will be moved from Cypress street to larger quarters at 171-173 Union street. Charles Howard Weston is the president and Herbert A. Pike the treasurer of the company.

The business of the Stanley Instrument Company, Great Barrington, Mass., manufacturer of watt meters, has been acquired by the General Electric Company. It is given out from Great Barrington that the Stanley factory will be operated after a period of idleness.

It is understood that the present buildings now under process of construction at the Lynn Works of the General Electric Company do not include all of the season's building programme. No announcement has been made of other additions, but it is stated on good authority that present demands on the works will require other new buildings. The buildings already under way comprise an addition to a machine shop, 140 x 200 feet, and a three-story manufacturing building, 80 x 500 feet. The works is rushed to its maximum capacity, in common with the other plants of the General Electric.

The Worcester & Providence Street Railroad Company has been incorporated to build an interurban air line electric railway between Worcester, Mass., and Providence, R. I., a distance of 39 miles, the distance including the entrance to the two cities over the tracks of the local companies. The promoters of the plan estimate the cost of the line as $2,000,000. A freight business is included as an important feature of the plan.

The machine tools in the Worcester Works of the Otis Elevator Company will not be sufficient to equip the new shops of the company now in process of erection at Buffalo. These shops are for the manufacture of the plunger elevator, which has up to the present time been built exclusively at Worcester, at the plant of the Plunger Elevator Company. The Worcester Works will be retained to care for the company's New England business. At present the company is operating two shops at Worcester, the main plant and the shops formerly occupied by P. Blaisdell & Co. There are practically two complete machine equipments, and one of them will be moved to Buffalo. The machinery will not, however, be sufficient to equip the new and large works. It is stated that a part but not all of the necessary new equipment has been purchased.

The business of George B. Buckingham, Worcester, Mass., manufacturer of malleable iron and steel castings, has been incorporated as the Arcade Malleable Iron Company, the name of one of the works which Mr. Buckingham conducted. The officers are: President and treasurer, Mrs. Abbie Buckingham; clerk, H. Paul Buckingham; directors: Mrs. Buckingham, Alice B. Albee, Florence B. Hollingshead, George M. Albee, Irving W. Hollingshead; general manager, Frank S. Chipman. The company has taken a lease of the works of both the Arcade Malleable Iron Company and the Worcester Malleable Iron Works. It is probable that the former works will be taken in connection with railroad improvements of the near future, in which case the business will be concentrated at the Worcester Malleable Iron Works, which will be enlarged for the purpose and fitted with new equipment.

Cincinnati Machinery Market.

CINCINNATI, OHIO, June 19, 1906.

The event of the week in machinery circles was the formal start of the Steel Foundry Company Thursday last, when the first official melt was run. On the Monday previous a test was made, and everything proved to be in a satisfactory condition. The official test was witnessed by the officers and members of the Industrial Bureau, and the press was extended the courtesy of being present. The machine tool and other metal working industries of Cincinnati have for years experienced difficulty in getting in reasonable time the necessary shipments of steel castings used in the various products of these trades. It was often necessary to send to distant cities for steel castings and to wait months for them to arrive. The business men of Cincinnati maintain an Industrial Bureau, whose sole purpose it is to increase the number of manufacturing plants in the city. This bureau tried for two years to get some steel castings plant to remove to Cincinnati, but failing in this it was decided by the directors of the bureau to find a good steel castings man, form a strong company of local capital around him and build a plant. C. G. Robinson of Pittsburgh, then connected with the American Steel Foundries, was finally selected. The original stockholders were directors of the Industrial Bureau, and to the determined efforts of this organization, headed by President Lodge, is due the existence of this new industry.

The Steel Foundry Company's plant as it stands at present represents an investment of about $125,000, which will be largely increased at an early date by the erection of additional buildings. The foundry building is of steel construction, 135 x 260 feet, equipped with two 30-ton traveling electric cranes. The office building, which is two stories high, 30 x 120 feet, also embraces a laboratory, electric light plant and pattern room, and is a model in its line. There is one open hearth acid furnace in operation, and the basic furnace will probably be in operation by the middle of July. The full capacity of the foundry will be about 1000 tons per month. The entire output is contracted for several months ahead. It was necessary to go outside of Cincinnati to secure the necessary skilled labor required, this being an entirely new industry.

Trade in the machine tool line is still very active and there are no indications of a decrease. Orders, both domestic and foreign, are as strong as ever and deliveries continue to be some distance in the future. Skilled machinists are much in demand and several of the larger manufacturers have been compelled to resort to advertising in the daily press to supply their demands. A very optimistic feeling prevails all along the line and the opinion is general that this year will be the banner year in the history of this industry. The shops are being taxed to their utmost limit and in a number of instances have been forced to work in close quarters to utilize every foot of available floor space. Others are adding to their plants, hoping thereby to be in a position to narrow the margin of deliveries and at the same time increase their output. There has been some inconvenience and delay incident to the trouble with the pumping machinery of the city water plant, but matters are once more about normal. Before long the new 10,000,000-gallon plant will be in service, with an ample supply for all emergencies.

The addition to the King Machine Tool Company's plant is proceeding toward completion and adds very materially to the present structure. The capacity of the shop will be more than doubled, which will be very acceptable as conditions are at present.

The Advance Machinery Company, Toledo, Ohio, has purchased part of the property on Hamilton street formerly owned by the Union Mfg. Company. This building is 125 x 150 feet, one story in hight, which will be given another story. An office building will also be erected as soon as possible after the new company moves in, which will be about July 1.

Government Purchases.

WASHINGTON, D. C., June 19, 1906.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until June 26 for a quantity of machinery for the Eastern navy yards, including schedule 603, bolt threader, buffer, centering machine, traveling cranes, jib cranes, overhead cranes, cutter, dovetailing machine drills, electric elevator, hoisting engine, roll former, emery grinders, tool grinder, pneumatic hammer, keyseating machine, lathes, milling machines, molding machines, planers, arbor presses, power press, punch, shears, wood trimmers, tubing machine; schedule 604, drills, emery grinders, lathes, shaft straightener, milling machine, sprue cutter.

United States Reclamation Service, Williston, N. D., will receive bids until July 9 for steam and electric pumping plants, to include three pumping stations containing centrifugal pumps driven by steam engines and electric motors aggregating 1200 horse-power; also two 300-kw. steam turbine generating units, 1000 horse-power boiler and accessories.

The Isthmian Canal Commission will soon ask bids for five flue cutting machines, 24 screw punches and a quantity of other supplies.

The following bids for supplies for the navy yards were opened June 12:

Bidder 16, Baker & Hamilton, San Francisco, Cal.; 23, F. S. Banks & Co., New York; 32, Commercial Electrical Supply Company, St. Louis, Mo.; 41, Wm. Wirt Clark & Son, Baltimore, Md.; 43, Crocker-Wheeler Company, Ampere, N. J.; 47, Dunham, Carrigan & Hayden Company, San Francisco, Cal.; 50, Drew Machinery Agency, Manchester, N. H.; 62, Richard H. Grey, East Oakland, Cal.; 64, General Electric Company, Schenectady, N. Y.; 71, R. W. Geldart, New York; 74, Handlan-Buck Mfg. Company, St. Louis, Mo.; 99, J. B. Kendall, Washington, D. C.; 120, Manning, Maxwell & Moore, New York; 122, Manhattan Supply Company, New York; 131, Northern Electrical Mfg. Company, Madison, Wis.; 149, Pratt & Whitney Company, Hartford, Conn.; 166, J. B. Roache, Brooklyn, N. Y.; 194, Sherman-Brown-Clement Company, New York; 219, Westinghouse Electric & Mfg. Company, Baltimore, Md.

Schedule No. 552.

Class 41. Two induction motors—Bidder 32, $1254.75; 64, $1180; 219, $1047.

Class 42. One motor drive outfit, one 7½ horse-power and two 5 horse-power motors—Bidder 32, $1024.25; 64, $899; 219, $876.

Class 43. One 5 horse-power direct current motor—Bidder 43, $200; 64, $163; 131, $250; 219, $199.

Schedule No. 553.

Class 63. Five hydraulic jacks—Bidder 16, $218; 41, $218.60; 47, $207; 62, $250; 74, $182.20; 99, $208; 120, $183.27; 166, $187.35; 194, $204.50.

Class 67. One valve reseating machine—Bidder 23, $325; 47, $325; 50, $444; 62, $325; 71, $325; 74, $325; 120, $325; 122, $365; 166, $325; 194, $325.

Schedule No. 573.

Class 191. One cutting off machine—Bidder 149, $675.

The following bids were opened June 11, circular No. 311 B, for six duplex steam and compound air compressors for the Isthmian Canal Commission:

Blaisdell Machinery Company, Bradford, Pa., $36.009.

Chicago Pneumatic Tool Company, New York, $34.350.

Ingersoll-Rand Company, New York, $37,800 and $33.-450.

The Laidlaw-Dunn-Gordon Company, New York, $29.940.

Sullivan Machinery Company, Chicago, Ill., $6370 each and $10,375 each.

Bids were opened as follows for an electric light plant for the Isthmian Canal Commission, under bids opened June 8, circular No. 310:

Bidder 20, Crocker-Wheeler Company, Ampere, N. J.; 36, Wm. Geiger, New York; 38, General Electric Company, Schenectady, N. Y.; 92, Ridgway Dynamo & Engine Company, New York; 116, Westinghouse Electric & Mfg. Company, New York; 117, Western Electric Company, New York; 127, D'Olier Engineering Company, Philadelphia, Pa.; 134, Buffalo Forge Company, Buffalo, N. Y.; 139, A. D. Granger Company, New York.

Class 92. Electric light plant—Bidder 20, $7926; 36. $6135; 38, item 250, $4860, center crank, or $3820, side crank; item 251, $1754; item 252, $566 and $487; 92, item 251, $5215 and $5100; 116, item 250, $3780 or $3528, plus $199.50 for Buckeye engine; item 251, $1836 or $1554, plus $52.50 for Buckeye engine; item 252, $774 or $638; 117, item 152, $4957; item 151, $2074; item 252, $750; 127, $6875 or $6700, for turbine generator $5890; 134, $5258; 139, item 250, $2825; item 251, $4146; item 252, $850, all f.a.s. New York.

Under bids opened by the Isthmian Canal Commission May 2, circular No. 305 F, the following awards have been made:

D'Olier Engineering Company, Philadelphia, Pa., class 1, two 160 horse-power tandem compound engines, $4900.

General Electric Company, Schenectady, N. Y., class 2, item 2, two 100-kw. generators, $4000; class 3, one switchboard, $950; class 4, 63 transformers, $2072.

The following awards have been made for supplies for the navy yards, bids for which were opened May 22:

M. T. Davidson, Brooklyn, N. Y., class 227, 20 vertical simplex double acting feed pumps, $800; Warren Steam Pump Company, New York, class 228, one combined surface condenser and air and circulating pump, $1024.50.

Under bids opened May 29 for supplies for the navy yards Manning, Maxwell & Moore, New York, have been awarded class 174, one boiler test pump, $32.50; M. T. Davidson, Brooklyn, N. Y., class 213, six simplex pumps, $240; class 214, one vertical direct acting single piston steam pump, $240.

The following awards have been made for supplies for the navy yards, under bids opened June 5:

Tabor Mfg. Company, Philadelphia, Pa., class 2, one power ramming split pattern molding machine, $565.

Henshaw-Buckley Company, San Francisco, Cal., class 3, one gear shaper, $1805.

Ingersoll Milling Machine Company, Rockford, Ill., class 4, one horizontal slab milling machine, $3725.

Niles-Bement-Pond Company, New York, class 5, one 100-pound helve hammer, $1000.

General Electric Company, Schenectady, N. Y., class 173, 14 electric motors, $4550.

Class 6, one die sinking machine, will be purchased in open market.

Large lake freighters are coming from the ship yards at an unusual rate. Two were launched on Saturday, June 16, the Henry H. Rogers at the South Chicago yard of the American Shipbuilding Company, and the W. G. Pollock from the Cleveland yard of the same company. The Rogers has the same dimensions as the J. Pierpont Morgan, recently launched, being 600 feet over all, 58 feet beam and 32 feet deep. Both are Steel Corporation boats. The Pollock is owned by the Valley Steamship Company. It is 440 feet over all, 52 feet beam and 28 feet deep. The Ishpeming, the second of three boats ordered by the Cleveland-Cliffs Iron Company, will be launched at the Ecorse yard of the Great Lakes Engineering Company, Detroit, on June 23. The Ishpeming is of the same dimensions as the Michigan of this fleet, which was launched early this month. A third steamer now under construction for the same company is to be named J. H. Sheadle, in honor of the secretary of the company.

CONTENTS.

	PAGE.
The Gleason Bevel Gear Generator. Illustrated	1967
A New Standard Power Press. Illustrated	1970
The Production of Abrasive Materials	1971
The Forest of Dean Iron Mine. Illustrated	1972
Proposed Subway at Pittsburgh	1975
The Duty on Motor Cycles	1975
The New Prentice Turret Lathe. Illustrated	1976
The Fire Brick Duty	1977
The New England Foundrymen's Association	1977
The Thor Air Driven Portable Saw. Illustrated	1978
Customs Hearings in New York	1978
Dr. Raymond on Engineers' Commissions	1978
The Master Car Builders' Convention	1979
Cold Galvanizing. Illustrated	1980
The McDonald Milling Attachment for Lathes. Illustrated	1983
Iron Ore Briquetting in Spain	1983
A New Steel Plant and Finishing Mills at Pittsburgh	1983
The National Association of Credit Men	1984
The Hawley Traveling Grate. Illustrated	1984
Extensive Improvements of the Tennessee Company	1986
Pioneer Furnaces to Be Remodeled	1986
A Three-Drum Tandem Lidgerwood Derrick Engine. Illus.	1987
Editorial:	
A Larger Place for the Molding Machine	1988
The Amalgamated Scales Settlement	1988
A Twenty-five Million Ton Year	1989
Publicity for Machinery Requirements	1989
The Shop Directory	1990
Correspondence	1990
Wages Scale Settlements	1991
The Foundry Labor Situation	1991
The Japanese Iron and Steel Market	1992
Our Trade with the Philippines	1993
The Best Artificial Drying System	1993
Personal	1994
New Publications	1994
Premelting Additions to the Open Hearth Bath	1994
Trade Publications	1995
News of the Works:	
Iron and Steel	1996
General Machinery	1996
Power Plant Equipment	1996
Foundries	1996
Bridges and Buildings	1997
Fires	1997
Hardware	1997
Miscellaneous	1997
The Iron and Metal Trades:	
A Comparison of Prices	1998
Chicago	1998
Philadelphia	2000
Birmingham	2001
Pittsburgh	2001
Cincinnati	2003
Cleveland	2003
New York	2004
Metal Market	2005
Iron and Industrial Stocks	2005
Pennsylvania Factory Inspection	2006
Obituary	2007
The Master Mechanics' Convention	2007
The Gayley Dry Blast on Low Phosphorus Iron	2007
The Machinery Trade:	
New York Machinery Market	2008
Philadelphia Machinery Market	2009
Chicago Machinery Market	2010
New England Machinery Market	2011
Cincinnati Machinery Market	2012
Government Purchases	2012
Hardware:	
Condition of Trade	2014
Notes on Prices	2016
Death of James A. Nealey. Portrait	2018
Inland Empire Association	2019
Trade Items	2019
Handling Strap Iron at Retail	2019
South Carolina Merchants in Convention	2020
Another Triumph for Retail Interests	2021
The Hot Springs Conventions. Portraits	2022
The Hardware Store of Neal & Brinker Company. Illus.	2033
The Norton Company	2034
Cement Coated Nails Trademark	2034
Price-Lists, Circulars, &c	2034
Miscellaneous Notes:	
Dixon's Graphite Pipe Joint Compound	2034
Glascock Bros. Mfg. Company	2035
Asbestos Protected Metal	2035
The Martin Skate Company	2035
Yankee All Steel Dampers and Clips	2035
Automatic Sash Holder. Illustrated	2035
Adjustable Emery Wheel Dresser. Illustrated	2036
The Evans Crescent Expansion Bolt. Illustrated	2036
Stevens Double Barrel Hammerless Shotgun. Illus.	2037
Current Hardware Prices	2038

HARDWARE

CONGRATULATIONS are in order in view of the treatment given by the conference committee of Congress to the Senate amendment in regard to furnishing Senators and Representatives with the names of persons on the rural routes, the danger of which was pointed out in these columns two weeks ago. A new illustration is thus afforded of the effectiveness of public discussion and the power of the press as the guardian of trade interests. The arguments adduced in these columns in opposition to the proposed measure were substantially reproduced before the conference committee, with the result that the objectionable amendments were stricken from the bill. As a consequence of this action, which it is presumed gives final form to the legislation in question, postmasters will continue to be prohibited from giving even to Senators or Representatives the names of those to whom mail matter is distributed. In this way these lists will be safeguarded against use by catalogue houses or by others, as postmasters are under strict orders not to give them out under any circumstances. The victory for correct business principles in Government affairs which has thus been achieved is indeed notable.

It will be remembered, while all parcels post, second and third class consolidation and post check measures were rejected by the Senate committee, that two decidedly undesirable features were incorporated in the bill before it was sent to the conference, including a provision authorizing a postal commission to visit foreign countries with a view to reporting such postal methods as have been found desirable and an amendment permitting Senators and Representatives to secure from rural carriers and rural postmasters complete lists of the patrons of rural routes. The victory with regard to the parcels post project was so complete that the trade might well have been satisfied with its achievement, but following the announcement in these columns of the character of these amendments many protests were forwarded to Washington, with the result that not only one but both of these amendments have been, by the conference committee, stricken from the bill. It would be difficult to imagine a more sweeping and comprehensive victory than has thus been scored by the associated retailers and the press in connection with this measure. The outcome certainly should encourage the trade to develop further the principle of organization and thus prepare for another year's campaign. This year's victories, though notable, must be followed up, for the advocates of mail order legislation are sleepless and untiring and have interests which would be greatly advanced by legislation which would in one form or another put at their service the facilities of the Post Office Department.

In the action taken at Washington there is reason for renewed confidence in the treatment by Congress of questions relating to commercial and business matters. If the real bearing of important questions is brought home to the legislators by the press or through individual or association action, it may confidently be expected that the result will be the enactment of laws for the public welfare rather than for the advancement of private interests, no matter how plausibly and persistently advocated. In the course of things at Washington in connection with parcels post and other postal subjects, Congress has certainly been governed by broad views and correct principles of public policy.

Condition of Trade.

As the trade approaches the completion of the first half year there are few signs of the traditional summer dullness. Merchants in both the wholesale and retail fields are kept busy supplying their customers and attending to the details of work in connection with the exceptionally good demand, and manufacturers, with only here and there an exception, find it necessary to keep their plants in full operation, frequently indeed working overtime. The cares and labors of both the makers and distributers are certainly increased by the volume and urgency of current business, which occasions in a good many lines an actual scarcity and involves delayed deliveries, and the trials and explanations which are incident to conditions when it is needful to put off customers on account of inability to meet their requirements promptly. Heavy pressure in the factories, with an unusual amount of telegraphing and correspondence, is thus found on the one hand, and broken stocks among the distributers on the other hand. Market values continue steady, with a tendency here and there toward a higher level. Manufacturers experience much difficulty in getting labor, and there is a growing complaint of its unsatisfactory character. Skilled workmen are, of course, in constant demand, and even though there is little in the way of general advances in wages, which are in general high, there is a constant movement toward increased labor costs. Quotable changes in Hardware and allied lines are few, but some revisions of prices are to be noted. Trade begins to give some evidence of the approach of the holiday season, and notwithstanding the very active business prevailing there is a perceptible lessening of the pressure and a disposition among those who can to take things a little more quietly. Fortunately the promise of the crops continues excellent, and a basis is thus afforded for confidence in the existing prosperity.

Chicago.

The approach of the midsummer inventory period has to some extent curtailed trade in the heavy Hardware lines, large consumers limiting their purchases to immediate requirements only to reduce stocks to the minimum. In the lighter lines conditions show no change from those prevailing a week ago and filling in orders from dealers for summer goods are exceptionally heavy. This is notably true of Lawn Mowers, notwithstanding the dry weather that has prevailed throughout the West during the past three or four weeks, and several manufacturers located in this immediate vicinity are still operating their plants on goods for this season's shipments. There have been no price changes of importance in any of the lines, and none is anticipated until the latter part of July or early in August, when the fall buying movement will set in. That somewhat lower values will obtain on large lots of Iron and Steel goods to jobbers is admitted, as the basis now prevailing in many lines is not conducive to heavy buying for future needs. Concessions in Wire Nails are now being made more freely by some of the independent manufacturers, this undoubtedly being due to the falling off in demand and the anxiety of makers to operate their plants till July 1. The crop outlook is most encouraging, and retailers and jobbers are already preparing for an unprecedented demand for harvesting tools. No stocks were carried over last season by the merchants, and in consequence purchases will be made on a larger scale than heretofore. Collections keep up very well considering the summer season, and financial conditions throughout the West and Northwest are unusually sound.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—To all Hardware men actively engaged in trade, notwithstanding the fact of their daily duties and the enormous amount of work accomplished weekly, time passes so quickly one can scarcely realize a week has passed since they had the opportunity of going over the important contents of *The Iron Age*, and those who furnish an opinion of the trade situation semimonthly can hardly realize it is time for the next article.

Since our last letter, early in June, but little change has taken place in either wholesale or retail trade circles; trade in wholesale departments has continued active and but few changes in price have taken place. Weather conditions have changed materially, however. One month ago great anxiety existed throughout the agricultural districts of this and adjacent States owing to the dry weather we were then having, but rain soon followed and those who suffered from this anxiety were at once made happy; but during the past ten days rain has been so frequent and the almost daily storms so heavy, that if continued a week longer anxiety will naturally be felt for an opposite cause. We are reminded of an old lady who was anxious about the crops on her farm owing to the dry weather. She called upon a preacher and asked him to please pray for rain in church the coming Sunday, and he consented. The next day after the rain commenced and it kept up for two weeks. Her mind was wonderfully distressed, and she said, "Oh, that is the way with these fellows (the preachers) they always overdo the matter."

It is not so with trade. While the past few months have shown a decided increase in the jobbing trade over the corresponding months of one year ago all are satisfied and happy over the change, and have been able to accomplish all the work necessary to have goods gotten out and shipped to customers at the proper time; and when complaints have been made it has been often found to have been caused from a shortage of cars with the various railroad companies. This, of course, is caused by an excess of railroad traffic. The experience of the last few years we infer has induced the wholesale trade to place their orders earlier in the season, before trade begins. We admit in doing this a fair amount of guess work is essential, but all the same they take their chances, run the risk and order in advance.

The reports concerning the agricultural crops throughout the country are certainly encouraging for the coming fall trade, and not only that, but it is encouraging to the farmers throughout our great land, who are made happy and who in the past few years have been accumulating money from the results of their harvests reasonably fast. The reports from the cotton district are also encouraging and fully appreciated by those residing in that district. It is not unusual, however, at this time of the year, that continued dry weather or even some few days of drought in the Northwest, Southwest and Western agricultural districts temporarily affects the stock market prices of wheat, corn and oats, and what are known as the bulls and bears may temporarily affect the general market prices, but in many instances later results prove this was unnecessary. The entire country is in hopes that any agitation of the present time will be overcome in a comparatively short time. It is a well known fact that the prosperity of our country depends largely upon its agricultural products.

At this writing our representative to the meeting of the American Hardware Manufacturers' Association and the Southern Hardware Jobbers' Association convention, which took place last week, has not yet returned, therefore we cannot give an opinion of the work accomplished at the Hot Springs convention. No doubt a full and interesting account will be given in this week's issue of *The Iron Age*, which paper always gives full and interesting details of the yearly National Hardware Association convention, at which time the American Hardware Manufacturers' Association also meets, as well as the summer meeting of the Southern Hardware Jobbers' Association and the American Hardware Manufacturers' Association.

Boston.

BIGELOW & DOWSE COMPANY.—Although the month of June usually shows a falling off in sales as the month progress, there are no indications of this being the case this month. The weather has been favorable—not too warm, not too wet, not too dry. Farmers have the reputation of never being satisfied, but it seems like they have no reasonable cause for complaint this year.

Neither have the merchants, for all seasonable goods with hardly an exception are having a ready sale. There is a shortage in stocks of Wire Netting and Screen Doors, but the jobbers generally were well prepared to care for their customers, knowing the disposition of the retailers to delay buying until their sales were assured.

This hand to mouth buying is increasing each year, and it is getting to be more and more difficult to sell goods very far in advance of the season. The retailers now are more dependent on jobbers' stocks than ever before. Many who have supplied their wants direct from the manufacturer are subjected to such annoying delays that they have been forced to look to the jobbers, where they get prompt shipments, and the joke of it is they pay no more for their goods.

The whole country seems prosperous, and New England is no exception. Prices are firm, and while there are no indications of any general decline, there are notices of advances coming in daily. There is nothing in sight to limit the continuance of the present prosperous conditions.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—The market conditions still favor the seller. The demand for good Tools and supplies is so heavy that it is a question of delivery rather than of price, and the small additional cost cuts no great figure compared to the advantage of prompt execution. The railroads are taxed to their utmost to accommodate both freight and passengers properly. Terminals are insufficient, bridges are too small, tracks must be doubled, sidings extended and more cars and locomotives put into requisition. Wages naturally enough are getting their share, and the workingman has the wherewithal to pay his bills.

The meeting at Hot Springs seems to have called together a good many notables besides the manufacturers and Southern jobbers, who are supposed to go there strictly for business. It is a pleasure to see met together so many men of cultivation and high purpose. We want to have the Hardware trade, as we declared several years ago, of such high standards that no mean man can abide within its charmed circle. We believe we can well take our cue from those broad gauge manufacturers who have done so much to ennoble American industry and make their calling a matter of national pride.

The meeting of the credit men at Baltimore is coincident with this Hardware meeting, and is one in which all of us alike are deeply concerned. These, too, have to be men of high grade, who hold in their hands or determine the amount of credit we shall bestow upon the would-be buyer. They not only have to have a nose for actual assets, but be judges of character, so that the man shall have the full benefit of the moral risk offered. These men can build up worthy men in business by extension of credit where it is deserved. Just this taking of a man's measure when he may be notably wanting in large capital is a delicate operation and not to be done with a tailor's tape line. In short, they have to be judges of human nature, readers of unwritten records, as well as close students of the agency reports. They belong to the educational classes in business and must be so recognized, and their diplomas are coveted prizes the commercial world over.

Portland, Oregon.

FAILING, HAINES & MCCALMAN.—General business conditions are good in this territory, and the only worry of our jobbers is how to supply the trade with the goods they need as fast as they need them. Collections are very good, and an exceptionally large proportion of dealers are discounting their bills.

Those who knew the Hardwaremen of the coast 15

years ago will be sorry to hear of the death of John R. Foster, for many years a partner in the firm of Foster & Robertson. He started in the Hardware business here in the early '50's, and was active in this line until 1893. At the time of his death he was the oldest Hardwareman in Portland.

The San Francisco earthquake has had less effect on trade in this territory than was anticipated, as the houses there are getting back into business and are looking after their customers well.

Baltimore.

CARLIN & FULTON.—The present month is generally considered between seasons and is seldom one of great activity with the wholesale trade, yet business continues remarkably active, and for many lines of goods there has been and still is a good demand. In spite of the prices established by the Screen Door Combination, the sale has never been greater, and the sale of Wire Cloth is on the increase every year. Lawn Mowers, Scythes and all harvest goods have also been active, but in a very few days, with the approach of the harvest, the demand will be over, and we will enter possibly the dullest month of the year.

Prices of goods generally have been well sustained by the manufacturers, as there seems to be no accumulation of stock anywhere, the demand generally exceeding the prompt supply. In a few days the season for vacations will begin, and there will be a temporary dullness of trade until probably August, when we expect to see the usual revival of business activity.

Cleveland.

THE W. BINGHAM COMPANY.—We have come to the time of year when road salesmen and house men think of and commence taking vacations. If the trade keeps up, as it has in the past 60 days, it will necessitate shortening up some of our vacations. The Hardware business in the Cleveland district is very good indeed. Orders for present needs are of many items and good quantities and are well assorted, indicating that the retail Hardware business is flourishing in all lines.

On account of the advance in prices of pig tin and other metals many manufacturers feel obliged to withdraw present prices, that they may be able to adjust themselves to present conditions. The advance in labor, viz., shorter hours, is another thing that will be quite a factor in the price of goods in the future.

Summer goods of all kinds are moving quite freely. There have been many orders placed for fall shipment for Axes, Coal Hods, Elbows, sheet iron, Stove Boards, Lanterns, Scoop Shovels, &c. The general tone of the Hardware market is quite healthy.

St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—Business continues in satisfactory volume. The large number of mail orders indicates a pressing retail demand. Vacations without any let up in business are causing embarrassment.

There were never such opportunities as at present, for Hardware house men and salesmen above the average in ability. Every employer of labor is looking for the right kind of men to take positions of responsibility and draw good salaries. In the meantime the young man upon whose career a fond mother's heart is centered watches the clock and figures out how he can most pleasantly spend his coming holiday. It is all right about that fellow who carried a message to Garcia, but what's the matter with your best girl in a canoe on Saturday afternoon? When one is young life is surely very sweet, the outdoor world is very beautiful, and after all maybe some of the bosses feel just a little envious when the cheap clerk closes his desk just as the bell rings and hikes out for the woods.

New stocks have been numerous. Thereby hangs a fable: Once upon a time there was a salesman who was a gentleman. He was not fond of whisky and of dirty stories, and he did not have the ability to make Ananias blush. Retail merchants who learned to know him well gave him their business.

It came to pass that a clerk and the owner of a livery stable decided to combine forces and start a Hardware store. The gentlemanly salesman called on them and was promised the order. But alas! alas! along comes his hustling competitor. He paints to them in glowing terms the charms of a large city. He loads them on a train. The bottle passes merrily. When they arrive he shows them the sights. They are wined and dined and driven in carriages.

When they feebly express a desire to call on the house of the gentlemanly salesman they are sent there under guard—two house men wait at the corner while the salesman accompanies them into the house for fear they will get lost. One of the tired merchants goes to sleep while the gentlemanly salesman attempts to talk business. They promise to call next day. Again they enter into the whirl of pleasure.

The next day, while they rest, their entertaining friend writes up their order for them, by assortments. The gentlemanly salesman returns to his territory with a pensive expression. The clerk and the livery man return home and tell their wives of the great labor entailed in selecting a new stock of Hardware. Let us speculate along the following lines:

Did the clerk and the livery man pay for their entertainment?

How much did their trip teach them about the Hardware business?

Are they prepared to compete with catalogue houses and other dealers in their lines at home?

How much did they have to do with the selection of their lines?

Did the salesman laugh when he loaded them on the cars and shipped them back?

What is the moral effect of this method of doing business upon the salesman who sold the goods?

What is the moral effect upon the employees of the house who laughed at the incident?

After a while when such salesmen are caught stuffing their expense accounts have we a right to complain?

How many "tainted" opening stocks have we sold?

Taking a long view, which of the two salesmen, the man who sold the stock or the man who lost it, is the winner?

Taking the average of chance, which of the two men will in the long run do the best for his house?

The above fable has several morals. As George Ade would say, "The moral is in the application of it."

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—The Hardware business of the South continues unusually good for this season of the year. Nearly all the jobbers report that the sales of June will show a considerable increase over those of last June. Many salesmen are out taking fall orders, and are meeting with much success considering that it is so early in the season for the fall trade.

Crop prospects continue to be unusually fine. Cotton is looking well, and wheat now being harvested in this section is going to be way above the average yield. Prices in all lines are firm and well maintained. Collections are very good.

NOTES ON PRICES.

Wire Nails.—The current demand for prompt shipment continues large for the season, and specifications on contracts are being received in good volume. Slight irregularities in prices, based upon advantages in freight rates, are reported, but the market is unusually even for the time of year. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in ten days:

Carloads to jobbers	$1.85
Carload lots to retail merchants	1.90

New York.—Labor troubles in the local building trade have been satisfactorily adjusted and an improved demand for small lots from store has been experienced. Orders are restricted to immediate requirements, and while comparatively small, are frequent. Quotations to

the general trade for small lots from store are on the basis of $2.15 per keg.

Chicago.—Concessions of 5 cents a keg continue to be reported and are limited entirely to several independent interests. Owing to the shortage of steel, the production of the American Steel & Wire Company has been curtailed to some extent, and for this reason and the fairly heavy current demand the stock accumulations for the fall trade are much lighter than in former years. The total shipments to San Francisco aggregate 80,000 kegs, but as they were made largely from mill stocks there was no interference with shipments to the local Eastern trade. Official quotations are as follows: $2 in car lots to jobbers and $2.05 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—There is a fair seasonable demand for Wire Nails, the mills entering about as much business as usual at this season of the year, and with some contracts on which specifications are still coming in, serve to keep the mills fairly busy. Prices on Wire Nails for delivery to some districts are quite firm, but for shipment to other points are being shaded about 5 cents a keg. Demand is likely to continue quiet until fall business opens up. While we continue to quote official prices, it should be noted that these are sometimes slightly shaded, as stated above. We quote: Wire Nails, $1.85 in carloads to the large jobbing trade and $1.90 in carloads to retail merchants, f.o.b. Pittsburgh, plus actual freight to point of delivery, terms 60 days, less 2 per cent. off for cash in ten days.

Cut Nails.—Some new business is being received by the mills, but the largest demand is specifications on contract orders. Quotations are as follows: $1.75, base, for carload lots, f.o.b. Pittsburgh; $1.85 for less than carloads, f.o.b. Pittsburgh; $1.95 for carload lots, on dock, New York; $2 for less than carloads, on dock, New York. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 5 to 10 cents advance on Steel Cut Nails.

New York.—Demand for small lots from store is considered satisfactory for the season, although orders cover only immediate requirements. Quotations to the general trade for small lots from store are on the basis of $2.05 per keg.

Chicago.—The mills are principally occupied in filling specifications on contracts, the demand representing a good business. A fair amount of new orders is also going to the mills. Quotations are as follows: Steel Cut Nails in car lots, $1.90 to $1.95; less than car lots, $2; Iron Cut Nails, $2 to $2.05 in car lots; less than car lots, $2.10.

Pittsburgh.—New demand for Cut Nails is nearly altogether for small lots, and the mills could handle a much larger amount of business than is being placed. Prices continue rather weak, some mills being willing to make concessions to secure orders. We quote Cut Nails at $1.75, base, f.o.b. Pittsburgh, for carload lots, and $1.85 in less than carload lots. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 5 to 10 cents advance on Steel Cut Nails.

Barb Wire.—There is a fair demand from general sources, while specifications from railways are being received in good volume. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in ten days:

	Painted.	Galv.
Jobbers, carload lots	$2.00	$2.30
Retailers, carload lots	2.05	2.35
Retailers, less than carload lots	2.15	2.45

Chicago.—Despite the off season the demand continues fair and specifications from the railroads are unusually heavy. Quotations are without change, as follows: To jobbers, Chicago, car lots, Painted, $2.15; Galvanized, $2.45. To retailers, car lots, Painted, $2.20; Galvanized, $2.50. Retailers, less than car lots, Painted, $2.30; Galvanized, $2.60. Staples, Bright, in car lots to jobbers, $2.10; Galvanized, $2.40; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—Very little business is being placed by the Hardware trade, but a good many orders are being placed by the railroads, and shipments by the mills are fairly heavy. Prices are fairly strong, but to some points of deliveries where certain mills have favorable freight rates slight concessions are being made. We quote: Painted Barb Wire, $2, and Galvanized, $2.30, in carload lots to the large jobbing trade, with the usual advance of $1 a ton to retailers in carload lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in ten days.

Smooth Fence Wire.—Demand from manufacturers of Fencing is comparatively light. Specifications on contract orders, from other sources, are large and orders have been placed for a considerable period in advance. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in ten days:

Jobbers, carloads	$1.70
Retailers, carloads	1.75

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago.—Contracts for Wire for industrial purposes extending through the last half and in a few instances through the first half of next year continue to be made and the requirements are averaging considerably above those of the past year. Specifications from this source are also heavy, although the demands of Fence manufacturers are very light. Prices continue to be well maintained, as follows: To jobbers, $1.85, f.o.b. Chicago, in car lots, and car lots to retailers, $1.90.

Pittsburgh.—New business being entered by the mills is quite heavy, manufacturers of some lines of goods, notably Springs, placing some heavy orders for shipment over last half of the year. Tonnage in Bale Ties is quite large, but to some points of delivery official prices are being slightly shaded. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in ten days:

Jobbers, carloads	$1.70
Retailers, carloads	1.75

The above prices are for base numbers, 6 to 9.

Chalk and Crayons.—The trade has been advised that the advance in Chalk and Crayons, announced in these columns a few weeks since, is to be followed on July 1 by a further advance amounting to about 50 cents per case on Crayons and 5 cents per gross on Chalk. It will be remembered that the previous change was made by the dominant company, subsequent to its absorption of competition by which it secured virtual control of the market. The radical character of the advance will be evident from the fact that White Carpenters' Chalk is now quoted in the company's general price-list at 40 cents per gross, whereas it could recently have been bought for at least 50 per cent. less. Indeed, jobbers are understood to have stocks of Chalk which cost them as low as, if not lower, than 18 cents per gross. Under these circumstances it is not unlikely that they will undersell the manufacturer for the present. Notwithstanding this consideration, the following quotations, showing the manufacturer's prices to the general trade, may be of interest, there being a substantial concession to the wholesale trade:

Carpenters' Chalk.

	Per gross. Cents.
White	40
Red	45
Blue	50

White Round Chalk Crayons.

	Per case of 100 gross.
Sandusky Brand	$7.50
Waltham Brand	7.50
Empire Brand	7.00
Sterling Brand	6.50

Stamped, Pieced, Japanned and Galvanized Ware.—Owing to the materially higher prices now prevailing on raw material, especially Tin, there has been a noticeable strengthening in the market for all kinds of Sheet Metal Ware. Manufacturers have asserted for some time that their business was not as profitable as could be desired, and call attention to the fact that on Tin Plates alone there have been four distinct advances since they have

made any change in their prices. They now appear to be acting in greater harmony than for many months past and quotations are reported to have advanced on an average about 5 per cent. for the general line. Some articles, however, notably Galvanized Pails and Tubs, and Coal Hods, remain substantially as before.

Oakum.—The demand for Oakum for the first five months of the present year has been considerably greater than for the same period of last year. Indications point to a still larger demand for the remainder of the year. Manufacturers are of the opinion that prices will go no lower. Quotations, f.o.b. New York, for small quantities, are as follows:

	Cents per pound.
Best Oakum	6½
U. S. Navy	6
Navy	5

Binder Twine.—Harvesting has reached the southern part of the winter wheat section and the market shows increased activity. It is generally anticipated that a smaller quantity of Twine will be sold this year, owing to the thin growth of straw, due to unusually dry weather. Prices continue irregular, the range, according to reports, being from 9¼ to 10 cents per pound for Sisal and Standard Twine.

Rope.—The fair demand which has characterized the market for some time continues, stimulated to some extent by Pacific Coast requirements. Another aspirant for Cordage business is the Standard Cordage Company of this city, which announces that it is prepared to make prompt shipments. For large and desirable orders the following quotations on Manila Ropes are sometimes shaded ¼ cent per pound, while for very small quantities ½ cent advance on quotations is often obtained. Under similar conditions the quotation on No. 2 quality Sisal Rope is shaded ¼ to ½ cent per pound. Quotations are as follows: Pure Manila, 12½ cents; B quality, 11½ cents; Pure Sisal, 9½ cents; No. 2 quality, 8 cents per pound.

Window Glass.—The closing down of factories has had the effect of stiffening the market and some manufacturers of Window Glass are of the opinion that an advance in prices will be justified in the near future. Demand in the West is more active than in the East and, according to reports, members of the Western Jobbers' Association have made the price on single strength 90 and 10, and on double strength 90 and 15 per cent. discount. Quotations in this section are as follows: Greater New York, single, 90 and 5; double, 90 and 10 per cent. discount. Eastern district, except the Boston district, 90 and 10 per cent. discount for all sizes of single and double strength. In the Boston district quotations are reported as being 90 and 15 for all sizes of single and double strength.

Linseed Oil.—The market continues dull and uninteresting and no indication of any immediate improvement in conditions is in sight. Demand is light and quotations are unchanged, as follows, according to quantity: City Raw, 39 to 40 cents per gallon; out of town Raw, 37 to 38 cents per gallon. Boiled Oil is 1 to 2 cents per gallon over Raw.

Spirits Turpentine.—Owing to heavy rains and consequent bad roads in the South, receipts of Turpentine at Savannah have been delayed. This has slightly strengthened the Southern market, in connection with a good demand. Local demand is light. New York quotations are as follows, according to quantity: Oil Barrels, 61 to 61½ cents; Machine made Barrels, 61½ to 62 cents per gallon.

Conductor Pipe and Eaves Trough.—A number of changes were made by manufacturers of Conductor Pipe and Eaves Trough at their meeting held last week in Atlantic City. Prices were raised for some territories and reduced for others. Some changes in teritorial boundaries were also decided on. In the Eastern territory, to which some additions have been made, Galvanized Pipe has advanced about 5 per cent. and Trough 2½ per cent.

A. F. Brown has sold his interest in Kennewick Hardware Company, Kennewick, Wash., to Mrs. H. A. Bier.

DEATH OF JAMES A. NEALEY.

JAMES A. NEALEY, agent of the American Screw Company, Providence, R. I., died at his home in Providence on the evening of Monday, June 18, from heart failure consequent upon pneumonia. Mr. Nealey was a native of Rhode Island, having been born in Pawtucket in 1842, and from early youth had been employed with the American Screw Company, with which he began his connection soon after its incorporation, which was in 1860. After occupying various positions as salesman and clerk, he was elected secretary of the corporation in 1884 and had served continuously from that time in the several positions of secretary, treasurer and agent, having occupied the last named position for the past 15 years.

JAMES A. NEALEY.

In all his dealings, both personal and in business relations, his life had been characterized by conscientious faithfulness and integrity. His devotion to the best interests of the business enterprise to which he gave his whole active life was all-absorbing and his genial disposition endeared him to his associates and won the personal friendship of a broad circle of business acquaintances. In 1892 he married Miss Grace G. Allen of Pawtucket, who survives him. He had no children.

THE RETAIL HARDWARE MUTUAL FIRE INSURANCE COMPANY of Minnesota, M. S. Mathews, secretary, Boston Block, Minneapolis, has issued a folder in which is presented a brief table from official reports showing the strength and economy of mutual insurance, as borne out by statement of premium receipts and payments of dividends to policy holders by Massachusetts and Rhode Island mutual fire insurance companies in 1904. Accompanying the folder is a statement showing the flattering condition of the Minnesota company, made at its quarterly meeting, 24th ult. This year the company is returning to its policy holders an amount equal to 40 per cent. of premiums paid. More than $700,000 worth of insurance was written in March, $428,450 in April, and $259,875 in May.

THE BILLINGS-CHAPIN COMPANY, manufacturer of Paints and Varnishes, Cleveland, Ohio, is sending out copies of a photograph, the subject of which is the theater party of the Ohio Hardware Association at the Grand Opera House, Canton, February 27 last. This illustrates the increasing attention given by the Hardware trade to this line, which is handled by many merchants with satisfaction and profit.

INLAND EMPIRE ASSOCIATION.

THE Inland Empire Implement and Hardware Dealers' Association held its second semiannual meeting in Spokane on the 6th and 7th inst. The association raised $10,000 by subscription with which to fight the "buggy trailers" and "range peddlers." The organization is determined to wage unrelenting war upon those men and it has outlined an extensive campaign. Secretary E. W. Evenson says the fund subscribed will be used to hire men to follow up the agents representing Eastern houses to explain to the would-be customers the advantage of buying from the home dealers, the trickeries which the outside agent is supposed to resort to and the superior quality of the buggies and ranges purchased from local merchants. A legislative committee was selected, which will attempt to secure State legislation to assist the association in its fight against the country peddlers.

It was decided to invite the Hardware and Implement men of the Walla Walla country and those of Umatilla County, Ore., to join the association. If a union is effected the Inland Empire Association will embrace all of the territory of eastern Washington, northern Idaho and part of eastern Oregon.

The association also put itself on record as favoring a union of all the Hardware associations of Washington, Idaho, Montana, Oregon and California into a Pacific Coast association.

TRADE ITEMS.

A. M. SCHEFFEY, who for many years was in the Bicycle business and later secretary of the Bicycle Association, has assumed the management of the business in Cleveland Blue, Enamo, Alumino and Golf White and Red, which are Bicycle Specialties manufactured by N. M. Robinson & Co., 206 Washington street, New York, manufacturing chemists.

RICHARD SCHWEITZER, formerly secretary and general manager of the Crawfordsville Wire & Nail Company, Crawfordsville, Ind., has severed his active business relations with that company and has become secretary-treasurer and general manager of the Parrish-Alford Fence & Machine Company, Knightstown, Ind. The latter company manufactures Farm, Poultry, Orchard and Garden Woven Wire Fencing.

SCOTT HARDWARE COMPANY, Paducah, Ky., which has been conducting the wholesale and retail business in that city for a number of years, has concluded the sale of its retail department to a new company, recently organized, and will continue in the jobbing line exclusively. The company took this step after reaching the conclusion that its wholesale business could be better served by divorcing the two departments.

A REGULAR meeting of the Cycle Association of the United States was held at Niagara Falls, N. Y., on the 6th inst., the session being one of 12 held each year to discuss the trade situation. It was stated at this manufacturers' meeting that the Bicycle outlook is rapidly improving. During the past year 24,000 Automobiles were sold and nearly ten times that number of Bicycles were disposed of. A large increase in the sale of Bicycles is predicted for the coming year.

AT a recent meeting of the stockholders of the Ebbing Mfg. Company, St. Louis, Mo., the name of the corporation was changed to the Milbradt Mfg. Company, and G. A. Milbradt, originator and patentee of the Milbradt rolling step ladders, was elected president. The Milbradt Mfg. Company will continue the manufacture of these step ladders and other store specialties and will assume all obligations of the former company.

G. LULSDORFF, founder of the Hardware firm of G. Lulsdorff & Son, Mankato, Minn., died on the 11th inst. Mr. Lulsdorff was born in Cologne, Prussia, in 1827, and emigrated to the United States in 1853. He established himself in the Hardware business in Mankato in 1863.

FRANK D. STALNAKER, of Lilly & Stalnaker, well known Hardware merchants, Indianapolis, Ind., has been chosen president of the Capital National Bank of that city. Last week Mr. Stalnaker was re-elected to serve a second year as president of the Indianapolis Board of Trade.

THE P. HAYDEN SADDLERY HARDWARE COMPANY, Columbus, Ohio, has reduced its capital stock from $200,000 to $100,000.

HANDLING STRAP IRON AT RETAIL.

ONE of our readers has requested that we suggest some way of handling a stock of Strap Iron, so that it will be convenient for retailing in lengths to suit, and at the same time may be kept from tangling or occupying an undue amount of space. The question has been referred to our correspondents and others, and several practical methods have been suggested. One merchant advises us that the problem of handling Strap and Hoop Iron has been solved to his satisfaction by running it on reels whenever there is occasion to break bundles. He states that when strung along in the order of their width the various sizes occupy but little space. He also explains that there is no difficulty in making the reels in the store, without giving the job to outside mechanics.

On Reels

Another correspondent writes us that his method of handling Hoop and Band Iron is to separate the bundles on receipt into smaller bundles or lengths of about 25 feet, which are tied up with tarred lath yarn strings and put into the iron rack, which most dealers in Heavy Hardware probably have. These small bundles the merchant has found to be most convenient for retailing, as customers will usually take one of them unbroken; otherwise they can be cut with but little trouble.

25-Foot Sections

TWO CLASSIFICATIONS

are generally made in referring to this line, a distinction being drawn between the smaller gauges called hoops, and bands, the term applied to larger sizes. Hoops run from 12 to about 24 gauge, which is the lightest usually carried, while bands include 12 and heavier gauges. Bands, and also hoops, down to about 16 gauge, come in scroll bundles about 12 feet long, consisting of several lengths strapped together to make them as compact as possible. Hoops of 16 gauge and smaller come in coils resembling a watch spring, no wider than the iron, and having a large central opening, because small coils could not readily be straightened out when the iron was to be used. Some merchants prefer to order 16 and even 14 gauge hoops in coils, but there is danger that the metal will get waves in it, which must be pounded out at considerable pains before it can be used for some purposes.

Bands in Bundles

Hoops in Coils

An excellent way to accommodate Band Iron in bundles is to stand it on end against a wall. Most storehouse walls are unfinished, so that there is nothing to scar or damage. Iron rods projecting from the studding or pieces of plank nailed diagonally between the studding and the joists overhead, may be used to form skeleton bins, which should be labeled with the size of Iron that they contain. Another form of Wall Rack adapted to the use of a merchant who carries a small stock of Band Iron is made by setting up 2 x 4 joists between floor and ceiling, about 4 feet apart. At intervals of about a foot holes should be bored, in which are driven pieces of round iron to lay the stock on. The projecting ends of the pieces of round iron should be turned up to prevent the iron slipping off. This form of Rack is not practicable where a merchant carries more than two or three bundles of a size.

Wall Racks

A convenient method of keeping Hoop Iron is to make a reel, the drum of which is long enough to accommodate a coil of every size carried. This may be constructed roughly, as there is no advantage in having the drum round. Coils should be separated from each other by pegs projecting from the drum, and whenever a coil is cut it should be tied up, to prevent its getting loose or unwinding when the reel is turned for some other coil.

Large Reel

SOUTH CAROLINA MERCHANTS IN CONVENTION.

THE second annual meeting of the South Carolina Retail Hardware Association was held on the 12th, 13th and 14th insts., at Columbia, the sessions being held at Craven Hall. The attendance at the meeting was very encouraging and larger than hoped for by the officers.

President Duvall's Address.

The presidential address of H. P. Duvall, Cheraw, was an interesting one and was listened to with close attention. We give the following extracts from it:

The secretary has not had one complaint to report to the Grievance Committee, either against manufacturers, jobbers, or members of the association. The reports from every part of the State as to trade conditions are most encouraging, as they are, in fact, all over the South, and it may be that every one has been so busy that they have had no time to see anything wrong, or that trade has been so good that no one has had need to resort to any questionable methods to secure trade. But we must remember this is

AN AGE OF RESULTS,

and we must not let our prosperity lull us to sleep. You know that growth means life, and stagnation death. Therefore, let us put forth every effort during the coming year to show material results from our organization, to show that outside of the social element it is worth something to be a member of the association. Stand strictly for what our organization declares its principles. Correct, or endeavor to correct, all troubles through the proper channel—the Grievance Committee. Let us obey the constitution and laws of the organization ourselves, and do our utmost to require others to do likewise, and the organization will be in the near future one of the strongest organized bodies in the State, and have power to accomplish good for every member.

One, if not the most important of all questions before us is the best means of

ENCOURAGING HARMONY AND CO-OPERATION

between the manufacturer, jobber and retailer, to the mutual advantage of each. A retailer separate and alone is entirely at the mercy of either the manufacturer or jobber, but if a member of an association representing a State and millions of money and trade it puts the retailer in a new light, and makes his wishes command respect, if they are reasonable, of course. The retailer comes in daily contact with the consumers, spends his time and money and takes many risks in putting on the market the manufacturer's goods, and is the outlet through which the volume of trade must go, and he should guard well his highway to the consumer, and not let others use it without toll. Alone he cannot do it, but in combination there is strength, and only by making our organization a working body and having well defined plans, and knowing what we are working for, and all working together for a common end, can we in my opinion make this organization a success.

While I realize the benefits to be derived from the social features, the gathering together and exchanging thoughts, &c., I did not, and I don't suppose any of you joined with that thought uppermost in your minds; but I realize the importance and magnitude of the Hardware business, and as a retailer want to see it carried as near to perfection as we can, making the organization so strong that a ruling by it will carry weight and be respected.

WE HAVE IT WITHIN OUR POWER

to do it once we are thoroughly organized and have as members every considerable dealer and have an eye single to the advancement of the interests of the retailers, guarding jealously our rights, even though at times we run counter to the opinions of others.

We can see very plainly that the tendency now is direct trade between the consumer and manufacturer. The profits of the retailer are being cut closer and closer, while the expense of doing business is growing larger and larger. We must have better stores, carry larger stocks, buy in larger quantities, have more expensive clerks and more money invested, and the time, in my opinion, is now on us when the retailers should have a settled policy as to the conduct of their business, especially their relations with the manufacturer and jobber, and be in a position when a demand is made to enforce it.

Mutual Fire Insurance.

An interesting and able address on "Mutual Fire Insurance" was delivered by Elliott Dunn of Charleston, which was followed by a general discussion of the subject. A special committee to whom the advisability of forming a Hardware mutual fire insurance company was referred made a report in favor of the project, and Paul W. McLure, Greenwood, the secretary-treasurer, was authorized to visit the merchants of the State and also those of North Carolina, with a view to securing members for the association and sounding them as to the mutual insurance measure. If a sufficient number of the merchants of the sister State become interested it is intended to change the association style to the Retail Hardware Association of the Carolinas.

Legislation.

A committee was appointed to secure the passage of a suitable lien law for the protection of Hardware dealers in supplying materials for building, with authority to employ a lawyer to frame such law, a copy of which will be mailed to every Hardwareman in the States of North and South Carolina.

Next Meeting.

In connection with the next annual meeting it was determined to procure a suitable hall in which manufacturers and jobbers can make exhibits. The place of meeting for next year was not finally determined, but either Columbia or Charlotte, N. C., will be chosen.

New Officers.

The following officers were elected for the ensuing year:

PRESIDENT, T. O. Flowers, Rock Hill.
VICE-PRESIDENTS: E. W. Duvall, Cheraw; Elliott Dunn, Charleston, and W. N. Everett, Rockingham, N. C.
SECRETARY-TREASURER, Paul W. McLure, Greenwood.

A very enjoyable banquet was given on Thursday evening. M. Bonnoitt of Darlington acted as toastmaster, and there were addresses by Mayor Gibbes, Paul W. McLure, Elliott Dunn and W. W. Everett.

Membership.

The members of the South Carolina Association are as follows:

Abbeville Hardware Company, Abbeville.
Arthur Hardware Company, St. Matthews.
Bennett Hedgepath Company, Clio.
Bennettsville Hardware Company, Bennettsville.
Burns Hardware Company, Sumter.
Bishopville Hardware Company, Bishopville.
Baskin-Rodgers Hardware Company, Bishopville.
Brook & Jones, Laurens.
J. W. Brock, Honea Path.
Burns & Barrett, Camden.
B. D. Collough, Johnston.
Conway Hardware Company, Conway.
Cheraw Hardware & Supply Company, Cheraw.
Dillon Hardware Company, Dillon.
Durant Hardware Company, Sumter.
Dickson Hardware Company, Manning.
M. O. Dantzler, Orangeburg.
Excelsior Hardware Company, Bennettsville.
Farmers' Hardware Company, North.
Florence Hardware Company, Florence.
Gaffney Hardware Company, Gaffney.
Gambrell Hardware Company, Greenwood.
Greenwood Hardware Company, Greenwood.
Hartsville Supply Company, Hartsville.
Horry Hardware Company, Conway.
J. A. Hair, Blackville.
Holman-Collum Hardware Company, Batesburg.
Wm. Johnson, Newberry.
Kingstree Hardware Company, Kingstree.
Everett Hardware Company, Rockingham, N. C.
Richie Hardware Company, Concord, N. C.
Gastonia Hardware Company, Gastonia, N. C.
Southern Hardware Company, Charlotte, N. C.
Carthage Hardware Company, Carthage, N. C.
Huske Hardware House, Fayetteville, N. C.
A. E. Lloyd & Co., Marion.
Manning Hardware Company, Manning.
Mullens Hardware Company, Mullens.
Marlboro Hardware Company, Marlboro.
Ninety-Six Hardware & Furniture Company, Ninety-Six.
Newberry Hardware Company, Newberry.
Orangeburg Hardware & Furniture Company, Orangeburg.
Planters' Hardware Company, Marion.
Pee Dee Hardware Company, Mullens.
Rock Hill Hardware Company, Rock Hill.
Rock Hill Supply Company, Rock Hill.
W. S. Stewart, Columbia.
Smith Hardware Company, Gaffney.
J. W. Smoak, Orangeburg.
Timmonsville Supply Company, Timmonsville.
Union Hardware Company, Union.
Wheeler Hardware Company, Dillon.
Wilkens Hardware Company, Gaffney.
Wyman & Co., Aiken.
Welling & Bonnoitt, Darlington.

Another Triumph for Retail Interests.

FROM OUR SPECIAL WASHINGTON CORRESPONDENT.

WASHINGTON, D. C., June 19, 1906.

THE legitimate retail interests of the country have won another great victory in connection with the annual post office appropriation bill, which, after its passage by the Senate, as already chronicled in these columns, was referred to the Conference Committee, comprising members of the Senate and House of Representatives. While all parcels post, class consolidation, and post check measures were turned down by the Senate Committee, two very undesirable features were incorporated in the bill before it was submitted to the Conference Committee. One of these was a provision authorizing a postal commission to visit foreign countries with a view of importing such postal methods as have been found desirable on the other side. The other amendment permitted Senators and Representatives to secure from rural carriers and local postmasters complete lists of the patrons of rural routes. Following the reference to these amendments, which appeared in *The Iron Age* June 7, many protests were sent to Washington, the effectiveness of which was shown when the Conference Committee struck out both amendments from the bill as finally determined.

Postal Commission.

When the Conference Committee took up the bill as passed by the Senate, the second amendment to be considered was one of the obnoxious features embodied in the bill by the Senate Committee. It provided as follows:

> For traveling and other necessary expenses of three experienced postal officials, to be designated by the Postmaster-General, whose duty it shall be to investigate postal systems and conditions in Great Britain and the Continent of Europe, and submit to the Postmaster-General detailed report of the results of their inquiries, with such recommendations as to improvements in the postal establishment and service of the United States as may seem desirable, $10,000.

As indicated when this amendment was first reported in this correspondence, it was stated at the Post Office Department that the Postmaster-General sought to secure this appropriation with a view to enabling certain officials of the department to make a thorough investigation of foreign methods of transportation, classification, accounts, &c., and that there was no purpose of introducing a domestic parcels post, although it was conceded that the commission would examine the workings of that institution in Great Britain and elsewhere if the amendment should be adopted by the Senate and accepted by the House. When the bill reached the Conference Committee the House conferees, led by Chairman Overstreet, who has been a consistent opponent of parcels post legislation of all kinds, were reminded that all the suggestions looking to possible experiments with a domestic parcels post that have emanated from the Post Office Department in recent years have resulted from European tours of postal officials. It also appeared to Mr. Overstreet to be undesirable that a $10,000 appropriation should be made for an unnecessary junket at a time when the leaders in Congress were using their best efforts to bring the total expense of the postal service as nearly as possible within the limits of the present revenue. The House conferees supported Mr. Overstreet with much energy and the result was that the Senate conferees yielded the point and the amendment was stricken from the bill.

Lists of Rural Route Patrons.

Subsequently the Conference Committee took up the amendment adopted by the Senate at the suggestion of Senator Bailey, of Texas, providing as follows:

> The Post Office Department shall make no regulation which will prevent any postmasters or any rural route carrier from furnishing a Senator from a State the names of those to whom he delivers mail in that State, nor to a Representative or Delegate the names of those to whom he delivers mail within the district or territory so represented.

In offering this amendment Senator Bailey admitted that it had been drafted by his private secretary, and rather as a matter of convenience for the clerks and secretaries of Senators and Representatives, who desire to secure the names of constituents to whom Government publications and seeds may be sent. Senator Penrose saw the danger in the amendment and declared that the information would be sought by "traffickers in patent medicines" and other products who have long desired to secure lists of the patrons of rural routes at little or no expense. Rather as a matter of courtesy to Senator Bailey, however, Senator Penrose withheld the point of order against the amendment and it was permitted to go into the bill.

When the Conference Committee reached this amendment Mr. Overstreet at once pointed out the dangers that would result from its practical operation. Without casting any reflections upon the young men who constitute the clerical force of the Senate and House Mr. Overstreet showed how simple a matter it would be for these clerks by a system of exchange to secure practically complete lists of all the patrons of the rural routes of the entire country—lists that would be worth many thousand dollars to the giant mail order houses. Senator Clay of Georgia, one of the Senate conferees, stood out valiantly for the amendment in Senator Bailey's interest, but Mr. Overstreet presented the case so forcibly that he was finally induced to yield. A telling argument which Mr. Overstreet put forward was the embarrassing position in which a Senator or Representative would find himself when some influential constituent would request the privilege of copying his rural lists of names and addresses. There would be nothing in the law to prohibit a member or Senator from permitting these lists to be copied, yet the effect would undoubtedly be very injurious to the retail merchants of the country. Senators and Representatives are often glad to fall back on a law in explanation of a refusal to grant a constituent's request, and Senator Clay and his Senatorial colleagues at once saw the force of Mr. Overstreet's point and yielded as gracefully as possible. This action leaves the present laws and regulations in such shape that no postmaster nor rural carrier can furnish any one lists of addresses of the patrons of rural routes under penalty of dismissal. The agitation of the subject in the Senate has been decidedly beneficial, as it has served to warn all members of the postal service of the exact terms of the laws and regulations and of the probable fate of those who fail to observe them.

W. L. C.

THE EDWARDS MFG. COMPANY, Cincinnati, Ohio, has recently taken possession of its new and commodious plant, 440-460 Eggleston avenue, which is entirely devoted to the production of everything in Sheet Metal Building Material, including the Edwards Metal Ceilings, Metal Shingles, Metal Fireproof Windows, Cornice, Skylights, Corrugated Iron or Steel Roofing, Steel Imitation Brick and Stone Siding, Galvanized Roof Crestings, Finials, &c. The company has lately issued a booklet relating to its extensive line of Sheet Metal Building Material and has in press a new catalogue of Metal Ceiling and Side Wall designs of the different periods, which will be forwarded to parties interested in Interior Sheet Metal Decoration on application.

IT is worthy of note that a Hardware firm was the first in any line of business to resume operations after the great earthquake and fire in San Francisco. This very creditable distinction belongs to Bennett Bros., whose former establishment with its entire stock of goods was destroyed in the flames. On Friday, two days after the earthquake, and while the conflagration was still at its hight, the members of the firm rented a double store. The next day they bought out a Hardware business a mile or so away, thus providing stock, and by Sunday they had in place 200 feet of shelving, 12 feet high, the lumber for which was about the only lot that passed through the military lines. The new address of the firm is 541-545 Haight street.

Smith Hardware & Implement Company, Turon, Kan., has sold its entire stock except Harness to H. Morse & Co.

THE HOT SPRINGS CONVENTIONS.

OUR telegraphic report of a week ago covered the opening sessions of the American Hardware Manufacturers' Association and the Southern Hardware Jobbers' Association, which met in joint convention at Hot Springs, Va., June 12, 13, 14 and 15. The meetings continued according to schedule, the excellent programme being carried out as arranged with but few exceptions. The jobbers, however, concluded their work and adjourned Thursday afternoon instead of Friday morning. A feature of the convention was the joint sessions of both organizations which were held every afternoon, while the mornings were devoted to separate executive sessions.

Attendance.

A large number of manufacturers were present, but the attendance of jobbers was hardly up to expectations. It must also be admitted that some of the meetings were rather lightly attended, although the subjects under consideration were ably presented and discussed. A spirit of relaxation and congeniality prevailed, and not a few took advantage of the trip as affording an opportunity to meet business correspondents in a social way and enjoy friendly intercourse with those engaged in the same line of trade. All surely benefited by the brief outing and relief from the care and routine of business life. Many were accompanied by their wives and daughters, and indeed there was an exceptionally large number of ladies present, who added much to the pleasure of every occasion and greatly hightened the brilliancy of the evening gatherings.

Letter from President Kretsinger.

While the executive office of the Manufacturers' Association was most ably filled by Vice-President Asbury, many regrets were expressed at the enforced absence of F. S. Kretsinger, its genial and popular president. The following letter, written from Paris, was received from Mr. Kretsinger, showing that he was with his associates in spirit and keenly alive to the questions which would occupy their attention:

At this distance and with the big "pond" between us, permit me to extend to you a most cordial greeting and accept my earnest assurance that I heartily wish that I could be present with you to-day in person as I will be in spirit.

When I accepted the honor conferred upon me at our Washington meeting last November I had no thought of getting so far away from home this year as to prevent my attending this convention, but, on the contrary, I looked forward to this time with great pleasure, until, exceedingly to my regret, business enforced a trip carrying me so far away that a return to join you now is of course impossible.

I shall most certainly have you in mind at the time when you are in session and give you "absent treatment," so far as wishing you every success in your deliberations. I hope to return in ample time to be with you during the fall convention, but in the meantime you will unanimously agree in my opinion that executive matters are in most skillful hands.

Those who were at Hot Springs in June of last year were so delighted with the surroundings and the accommodations in and about the ample hostelry that without a dissenting vote your committee endorsed the wish of our friends, the jobbers, and chose Hot Springs as the place of meeting for this date. I feel warranted in saying that each and every one here will approve of the selection, and also I hope that they will realize all the pleasures and profit which they anticipated in coming here.

Not the least thing to consider in determining a place of meeting is that of ample hotel accommodations for both associations, and also to have surroundings agreeable to the ladies, as well as the gentlemen, for while business measurably is our mission here, still the pleasure of renewing our acquaintances with each other and our friends, the jobbers, influences us in our coming.

ASSOCIATION DEVELOPMENT.

It must have been noticed by you that our gatherings are increasing in attendance and in importance, and this inclines me to say that to have this continue each and every member should regard himself as a special and active agent, whose presence at each session is essentially vital; and that it is desirable that each and every one shall appear on the floor at each session and be interested in discussing the subjects before the house. The free interchange of views, even though brief, will tend to let in new light, and guide us in solving the problems which are presented to us from time to time in the matter of conduct of our own business and regarding our relations with the trade.

A TOO RADICAL DEPARTURE.

The subject still held to the front by some of our good friends, the jobbers, is the catalogue house question; but for our association to even attempt to legislate upon it when, while it is of no interest to many of our members, it is of considerable importance to others, would be a too radical departure from established customs, and would accomplish nothing satisfactory to its most enthusiastic advocates, but would bring discord among ourselves and, besides, would not by any action on our part change existing conditions. As we neither control nor even desire to manage any member's private affairs we may as well not attempt it, nor indicate any inclination to do so.

SPECIAL BRANDS.

One subject, however, that of special or jobbers' brands, is to many of our members a very serious one. Some of us, because of the character of our product, may be indifferent about it, but those whose sales are of articles into which labor enters largely, and its result is an article having a special form and where skill and art is a factor in its production, know too well the very great importance of retaining control of its title, and in having the trade—wholesale, retail and consuming—know by whom and where produced.

It is not alone sufficient that the manufacturer annually dispose of his product, but of equal importance, and we might almost say it is of greater importance, that he carry with those sales

HIS SIGNS AND MARKS,

which aid him in doing so at a fair margin. It is these brands and names that are part of the good will and which perpetuate his business for following generations. To the extent that he departs from this course does he lessen his claim on the public to call for his particular goods.

There is no disputing the fact that the jobber who buys articles marked with his own brand instead of that of the manufacturer has one prominent purpose in mind, and that is that he may be as independent as possible of the source of supply and shift it whenever prices invite him to do so, and when doing so the transaction invariably and almost unavoidably reflects unfavorably upon the character of the make formerly purchased, for the change carries with it, openly or otherwise, that he is now buying a better article, although he actually may be taking one inferior in size, weight, finish or quality of material. Then that manufacturer who has lost that business finds it difficult to enter that market, for his own brand is not known there and he practically has to start anew to introduce it.

Where, as in some cases, the special brand evil cannot be cut off absolutely, I believe that it can be minimized by making

AN EQUITABLE CHARGE TO COVER THE EXTRA COST

which invariably accompanies the filling of such orders. Buyers generally are fairly disposed and are not insistent to obtain something for nothing, and particularly when they claim, as many have done, that they obtain more profit on goods bearing their own brand than those bearing the manufacturers' regular stamp.

While this association is prospering in numbers and character of membership, we should not be content but should endeavor each year to increase this with desirable material, and if possible obtaining members from new fields and also from industries not already represented.

Those of us who have been active in attendance and in the work of the Association since its organization in Cleveland, October 9-11, 1901, must feel that a great deal of good has been accomplished in a business way, aside from the pleasure of enlarged acquaintance among our associates and among the distributers. The action which this association took on one subject only—that of declining to pay the jobbers for cataloguing our goods, has effected a saving sufficient for the time and expense we have given.

I WOULD RECOMMEND

that our members from time to time during the six months intervening between meeting dates present to our Executive Committee subjects for consideration at

the following association meeting; and if it is thought that they are proper subjects for us to consider that the members be advised of same some weeks before the meeting dates, that each one may come prepared to discuss if necessary the questions to be presented.

We can hardly claim, either as individuals or as an association, to be perfect—nor in always doing the right thing at the right time, as an organization; but let us consider every subject so carefully, that when we do legislate on it we will not have cause to regret it nor find it necessary to retrace our steps.

If we cannot accomplish any very great things, let us do something, even though it be commonplace, for as Wagner has said, "Nothing endures like the commonplace."

Jobbers' Convention Committees.

The following committees were appointed by President Dunlop:

FINANCE: J. D. Moore, C. H. Ireland, Bruce Keener.
RESOLUTIONS: Fred. Fox, J. E. Keyser, C. B. Hancock.
NOMINATING: Mr. Ewing, W. L. Sanford, G. E. King.

Other standing committees of the association continued to serve throughout the convention.

Entertainment.

For those who were on pleasure bent the beauty of the situation and the exceptional facilities afforded by the hotel, both for indoor and outdoor diversion, were all that could be desired. Riding, driving and golfing were very generally enjoyed, and several games of baseball were played by opposing teams of manufacturers and jobbers. The card and billiard rooms were also well patronized. Tuesday evening an impromptu entertainment was given in the ballroom of the hotel, participated in by what may be described as Hardware talent, assisted by the orchestra of the hotel. This was followed by dancing. A somewhat similar entertainment was held on Thursday evening.

F. S. KRETSINGER.

The banquet, which occurred Wednesday evening, was a most brilliant affair. Tables were spread in the spacious dining room of the Homestead Hotel, whose walls of dazzling whiteness set off to great advantage the beautiful gowns of the ladies and the conventional evening attire of the gentlemen. An elaborate menu and toast list was provided, which was uniformly preserved as a memento of the occasion. Music was furnished by the orchestra of the hotel and by an excellent male quartette from Cincinnati, whose selections were enthusiastically received. The speaking was fully up to the high standard which had been set in previous years. N. A. Gladding, Indianapolis, occupied the chair, and in a finished address introduced as toastmaster J. C. Birge, St. Louis, whose formal welcome was delivered with the wit and eloquence for which he is well known. He introduced in turn President Dunlop of the Jobbers' Association and Vice-President Asbury of the Manufacturers' Association, who responded happily. The following very enjoyable addresses were then listened to: "Definitions," ex-Governor W. D. Hoard of Wisconsin; "Recollections of Twenty Years in Congress," ex-Governor Benton McMillin of Tennessee; "Enterprise and Comradeship," Rev. Willard Scott, Worcester, Mass. The banquet was a most successful and delightful one, and though continuing until a very late hour but very few chairs were vacated before the close. All participants expressed great appreciation of the work of N. A. Gladding and Irby Bennett, to whom the credit of perfecting and carrying out the arrangements was mainly due.

Serial Numbers on Packages.

There was a strong sentiment on the part of the Southern Hardware Jobbers' Association in favor of the proposal brought up last fall at the Washington convention of the National Hardware Association that manufacturers be requested to place on each box or package making up a shipment a serial number in addition to the name or initials of the consignee. It was shown that the employment of such a system would greatly assist in checking up freight received, tracing lost items and connecting goods separated in transit with their proper invoices. As evidencing their desire to serve the convenience of their customers the manufacturers passed the following resolution:

Whereas, Our attention has been called to the fact that it is sometimes difficult to locate one or more boxes or packages which may have been lost in transit from a general shipment, where said boxes or packages have been marked by the consignee's initials; therefore

Resolved, That we recommend that the members of the American Hardware Manufacturers' Association place on each box or package a serial number in addition to the name or initials of the consignee.

Contributing to Jobbers' Catalogues.

Manufacturers gave some attention in executive session to the matter of requests from jobbing houses for donations to defray the expenses of catalogues and other publications. It was unanimously agreed that action previously taken on this question had resulted in much good and annoyances had been materially lessened. Inasmuch as a tendency has been observed, however, to renew such requests, the association reaffirmed its former action as expressed in the following resolution:

Resolved, That we reaffirm our past action bearing upon requests from manufacturers by jobbers and retailers for donations to catalogues and other publications, that this association looks with disfavor upon such solicitations, which have the appearance of forcing donations through fear of losing the trade of the applicants, and also deplores the practice, and recommends to its members that they decline to entertain such applications for financial assistance.

Uniform Size Loose Leaf Catalogues.

In the report of the Executive Committee of the Jobbers' Association the matter of adopting loose leaf catalogues of uniform size was referred to at some length. The following recommendations were also made by a special committee appointed a year ago to consider this subject:

After a careful canvass of our membership, both as to the size of catalogues and loose leaf binders they are now using and their ideas and wishes as to something more desirable, if any, we recommend the adoption of the following size sheet for the regular printed bound catalogues: 8¼ x 11 inches. For use in loose leaf binders we recommend the adoption of sheet 9½ x 11. Ordinarily the printing space on either sheet will be the same, the loose leaf ledger being wider to permit of its being inserted in the loose leaf binders, the necessary margin for binding being greater than in the regular bound books. Printing space or type form should not be over 6¾ x 9¼ inches on either bound catalogues or on sheets for loose leaf binders.

It was moved that these recommendations be presented in some way to the Manufacturers' Association, the jobbers apparently desiring that the manufacturers should co-operate with them by furnishing leaves of the proper size for binding in their catalogues, illustrating and describing the goods they make. In support of this proposition it was argued by the jobbers:

1. It will enable the manufacturers to supply descriptions and illustrations of new goods in such a manner as will enable the jobbers to keep careful track of the same, as the majority of the jobbers are using loose leaf binders for the use of the office and of their traveling salesmen. The same is true when the manufacturers issue new lists and discounts, and, in fact, many manufacturers have already adopted the plan of supplying the jobbers with their requirements in loose leaf sheets of their general line.

2. By securing the manufacturers' co-operation in the adoption of these uniform size loose leaf catalogues, the jobbers will be enabled to classify and file the catalogues in a very simple manner, compared to the great variety of sizes of catalogues which have previously reached the jobbers from manufacturers throughout the country

3. It will lead up to some uniform plan whereby a number of jobbers may prepare catalogues together at a minimum expense.

In a general way it may be said that the proposition of the jobbers, although not formally presented to the manufacturers, did not arouse much enthusiasm when brought up by the latter in an informal way. By some the opinion was expressed that as the publication of catalogues and other printed matter was a part of the jobbers' legitimate expense of doing business, it was hard to see why manufacturers should be concerned with the

details relating thereto. Others frankly referred to the proposal as being closely allied with the custom of jobbers to ask donations from manufacturers in consideration of cataloguing their goods, a custom on which the Manufacturers' Association has clearly defined its position.

Jobbers' Resolutions.

In addition to the special resolutions referred to in this report under the topics to which they refer, the Jobbers' Association adopted a series of general resolutions reported by its committee. These included thanks to officers and Executive Committee for faithful service, appreciation of the work of the Entertainment Committee and thanks to the management of the hotel. Complimentary resolutions were also addressed to the ladies present, to the special speakers at the banquet, to the Manufac-

F. B. DUNLOP.

W. W. WEBBER.

turers' Association as a body and to the trade press. Appropriate resolutions were also passed in recognition of the death of two members of the association during the past year, Edmond Orgill of Memphis, Tenn., and Col. B. F. Atkinson of Fort Smith, Ark.

Magazine Advertising.

An interesting and suggestive address on magazine advertising was delivered before the manufacturers by W. M. Boyd of the Curtis Publishing Company. He referred to the fact that manufacturers of Hardware, as compared with other trades, have been slow to enter upon publicity campaigns in the magazines. After describing what has been accomplished by these means in exploiting breakfast foods, soaps, &c., he endeavored to show that results of equal profit lay within the reach of Hardware producers who had the courage and resources to familiarize the public with their names and standardize their brands by similar campaigns. Such advertising, he declared, would go far toward the solution of many of the most serious problems met by the manufacturer in getting his goods to the consumer. Appreciation of Mr. Boyd's address was expressed by a formal vote of thanks.

Special Brands.

There was evident in the sessions of the manufacturers and also in informal discussion among individuals a growing weight of sentiment against special brands. The evils of marketing goods under jobbers' private brands have been kept prominently before the trade in many ways, and while efforts to improve the situation have of necessity been more or less sporadic, and few manufacturers have as yet had the courage to make a determined stand, it was reported by the Executive Committee that a positive betterment of conditions in this regard had been observed. The following resolution, reaffirming their attitude on this subject, was adopted by the manufacturers:

Whereas, We have previously acted upon resolutions setting forth the evils resulting from the extended use of jobbers' special brands, the result of such action proving beneficial to the trade at large; now therefore be it

Resolved, That we reaffirm the resolutions previously adopted and again ask for a careful consideration of the subject by both jobbers and retailers.

Labor Problems.

Special interest in labor problems was apparent on the part of the manufacturers, many of whom are having great difficulty in manning their works as well as in meeting the demands of organized unions and the like. Trouble in an acute stage presented itself in the favorable report on the Eight Hour bill recently offered in Washington. Regarding this question the following resolution was adopted:

Whereas, We are firmly convinced that the serious consideration of the so-called Eight Hour bill by the Congress of the United States will do much to unsettle the existing prosperous business conditions; and

Whereas, The said bill has been ordered reported to the House of Representatives favorably and is now in the hands of the Committee on Rules; now therefore be it

Resolved, That we are unalterably opposed to the consideration of said bill, and therefore direct that the secretary be instructed to telegraph promptly our protest to Hon. Jos. G. Cannon, Speaker of the House of Representatives, respectfully requesting him to prevent through the said Committee on Rules action upon the said bill.

An interesting and powerful address on the labor problem was delivered at the joint session of the manufacturers and jobbers Thursday afternoon by J. A. Emery, secretary of the Citizens' Industrial Association of New York. His clear cut statement of conditions now existing and problems to be faced and his eloquent appeal to employers to meet all issues squarely on the ground of principle and not of pocket were listened to with the closest attention and met with general indorsement.

Postal Questions.

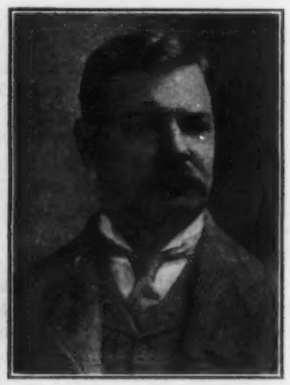
Postal questions came in for considerable discussion on the part of both associations. In their annual report the Executive Committee of the jobbers referred with gratification to the defeat of legislation proposed at the current session of Congress which would be inimical to the interests of the merchants of the country at large. At a meeting of the manufacturers a paper prepared by President Kretsinger was read, advocating a reduction in letter postage and especially referring to abuses connected with the mailing of second class matter. In this connection the following resolutions were adopted:

Whereas, The reports of the Post Office Department show that the weight of first-class matter handled is 13½ per cent. of the total and yields 78 per cent. of the total revenue, and the weight of second-class matter is 66 per cent. of the total and yields but a fraction over 4 per cent. of the revenue; and

Whereas, The present administration has taken a decided stand against similar unjust discrimination on the part of public service corporations controlled by private ownership; now therefore be it

Resolved, That the American Hardware Manufacturers' Association recommends and urges that each member individually

CHAS. W. ASBURY.



ROBERT GARLAND.

use his influence with the Representatives at Washington from his State toward the correction of this injustice to the business interests of this country; and

Resolved, That printed information on this subject be disseminated as widely as possible by each member.

Uniform Freight Classification.

Problems of transportation occupied a prominent place in the deliberations of both associations. The matter of uniform freight classification was announced for

discussion at one of the joint sessions. Manufacturers felt that the wishes of the jobbers should have first consideration and the latter laid special stress on the importance to them of maintaining a wide differential between carload and less than carload shipments. According as this differential is increased or decreased, said one, so is the prosperity of the jobbers in one section increased or diminished. It was suggested, however, that jobbers should not ask the railroads to increase the differential by advancing less than carload rates, thus antagonizing the retail trade, but should constantly hammer for lower rates on carload shipments, in which the interest and cooperation of the retailers could also be enlisted. In the report of the jobbers' transportation committee, W. E. Newill, chairman, whose active and efficient labors throughout the year have met with unqualified appreciation and endorsement, the suggestion was made that jobbers would make a mistake in attempting to group too many lines of goods in one car to secure the benefit of carload rates. While this can be done with some goods, to insist on it in other directions would lead to the possibility of large local retailers making up carloads and thus cutting out the jobbers' advantage.

F. D. MITCHELL.

IRBY BENNETT.

A member of the Freight Committee of the Manufacturers' Association stated that after studying the question carefully he had come to the conclusion that while a uniform classification might result in lowering the rates on some classes of Hardware it might bring an advance on other classes. In his opinion it was better to attempt to lower the rates on specific articles rather than merely to ask for a uniform classification. Thus classes that are now low can be kept where they are. The thing to do is to bring about uniformity without raising the rates on any articles. The matter was finally left to be conferred upon jointly by the Freight Committees of both associations.

Quotations to Semi-Jobbers.

Serious question as to the eligibility of small jobbers to receive quotations from manufacturers was raised at one of the sessions of the Jobbers' Association. It was brought out that houses of this class located in smaller cities or towns where expenses are light, although not recognized as jobbers, have by cultivation and perhaps through facilities for giving convenient service, built up a trade which has become a growing annoyance to their greater neighbors—not to say competitors—and, if it must be confessed, made serious inroads into their business. It was asserted that some of these *quasi* jobbers have even made application for membership in the association, presenting statements to show that they have large enough capital and a sufficient number of traveling men to entitle them to admission.

It was voted to amend the constitution of the association so that only concerns "located in recognized jobbing centers" should be eligible for membership.

The suggestion was also made that manufacturers could co-operate with and protect the legitimate jobbing trade in such a way as to save them the annoyance of such competition, and the following resolution, addressed to the American Hardware Manufacturers' Association, was adopted:

Whereas, There appears to be a growing tendency in the territory occupied by our association to establish semijobbing houses at new and unimportant points, whic hare not recognized as jobbing centers, and inasmuch as these concerns are not in position to conduct a jobbing business because of limited facilities; therefore, be it

Resolved, That we request the manufacturers that before making prices to or in any way quoting said concerns, that they first be advised by this association concerning the same. We proceed with the view that the interests of the jobbers and manufacturers are mutual, and they should, therefore, co-operate along these and all lines in order to secure the proper returns for the capital and labor invested, and that each refrain from doing anything that will militate against the interests of the other; therefore

Resolved, That the Southern Hardware Jobbers' Association respectfully request the American Hardware Jobbers' Association respectfully request the American Hardware Manufacturers' Association when formulating their trade prices for the territory occupied by our association that they invite and respect the decision of this association.

Admirable Papers.

At a joint session of the manufacturers and jobbers a stimulating and entertaining paper entitled "The Best Business in the World," was read by J. H. Kennedy, New York, editor of the *Hardware Dealers' Magazine*. He referred enthusiastically to many advantages possessed by the Hardware merchant over those in other lines and declared that he should prove equal to all demands upon him. The paper was highly appreciated and greatly enjoyed.

"Distributing Costs" was the title of a paper prepared by W. M. Pratt, Goodell-Pratt Company, Greenfield, Mass. Mr. Pratt was unable to attend the convention, but the paper was read before the Manufacturers' Association by its secretary. It was a very careful and intelligent comparative study of economy in methods of getting products to the consumer.

G. H. Lyon, Rose-Lyon Hardware Company, Little Rock, Ark., read a paper before an executive session of the jobbers, entitled, "Backbone: An Essential Element." Mr. Lyon referred to the prevailing low profits on various Hardware commodities and emphasized the importance of holding up the price.

Rate Legislation and Delayed Deliveries.

Sentiment in favor of governmental regulation of freight rates was very strong, and in addition to equitable rates an improvement in service was urgently demanded. The matter was presented to the jobbers by John Donnan, W. S. Donnan Hardware Company, Richmond, Va., who presented a strong indictment against the railroads, on account of delays in transporting and delivering goods and suggesting a drastic remedy. The main points of the letter are included in the following extracts:

S. G. GILFILLAN.

C. B. CARTER.

For several years the railroad systems have given to the shippers of this country, both jobbers and manufacturers, the most miserable service. In our city we have complaint after complaint from our customers of slow delivery, and we are compelled in a large proportion of the shipments we make to have our goods traced to delivery. While they claim to give us a schedule of 250 miles per day on their through freights, almost daily instances can

be produced in which they make a schedule of from 2 miles to ¼ mile an hour.

STATE COMMISSIONS HELPLESS.

If the business of the jobbing and manufacturing trade of this country was confined to the limits of their own States our corporation commissions could rectify same; but, as you well know, 95 per cent. of our business is interstate, and therefore our corporation commissions are as worthless to us on the larger proportion of our business as a lot of jay birds sitting in convention in Alaska.

EXCUSES OF THE RAILROADS.

When we approach the railroads, asking that they help us in some way we are told month in and month out, year in and year out, that their roads are congested with freight, traffic blocked, and that they are double tracking their lines, and give us in every instance some such frivolous excuse; consequently each of us, as jobbers and manufacturers, and the individual chambers of commerce of our respective cities, have no more effect upon them than water upon a duck's back.

TIME FOR ACTION.

To my mind the time has now arrived when the merchants and manufacturers of this country should rise in their might and indignation and endeavor to do something that will result in remedial measures. The most effective manner in which to meet an immovable body is with an irresistible one—the railroads are the immovable, but Congress the irresistible.

A PENALTY PROPOSED.

It is well known that the railroads of this country advertise an average schedule of 250 miles per day on their through rates. As jobbers and manufacturers we would be willing for them to make 150 miles per day and be perfectly satisfied if they gave us such service, but in the event of their not making a schedule of 150 miles per day my idea is that we try to get Congress to penalize every railroad of this country 5 per cent. per day wherever the 150-mile schedule is not maintained. In the event that a shipment is made to or for us of, say, 600 miles, at the end of the fourth day their time limit would be up, and on the fifth day they are penalized 5 per cent. on the amount of freight charged, the sixth day 10 per cent., the seventh day 15 per cent., the eighth day 20 per cent., and so on until our goods are delivered to us. If such a law could be added to the present rate bill the merchants and manufacturers would have some recourse by which to have their evils redressed, whereas, as it now stands, they have none.

THE WORM WILL TURN.

In the writer's humble opinion, unless some such measure is appended to the rate bill, and that soon, and the railroads of this country are in the future allowed to continue to treat its shippers in the manner in which they have been doing for fully three years past, the time is not far distant when, if a vote of the shippers of this country were taken, rather than stand the injustice to which they have been subjected fully 75 per cent. of the most conservative merchants and manufacturers of America would cheerfully vote for Government control of railroads.

Mr. Donnan urged that members of the association write to their Senators and Representatives stating the conditions that exist and praying for relief; that they ask the co-operation of the chambers of commerce in their cities and urge the members of the National Hardware Association and the American Hardware Manufacturers' Association to take similar action. He declared that the jobbers and manufacturers of Hardware are shippers of the largest tonnage in the country, and their influence should be strong in remedying the evils referred to. The following resolution, proposed by Mr. Donnan, was formally adopted by the jobbers:

Whereas, It is well within the knowledge of this association that the railroads, as a rule, throughout the country do not give deliveries or shipments commensurate in time with the remuneration they collect for handling such shipments; and

Whereas, This state of affairs has continued for a great number of years, to the injury of the business interests of both shipper and consignees; and

Whereas, The present conditions in this matter are worse than ever before, and we see no prospect of immediate or future improvement of this intolerable situation; therefore be it

Resolved, That this association pledges itself, at a time to be decided on, to advocate and forward by all lawful means within its power the enactment by the Congress of the United States of an act to empower the Interstate Commerce Commission to issue a rule to all railroads requiring a time limit on all interstate shipments conforming to length of haul and with a percentage of discount on freight bill payable to consignee for each 24 hours' delay beyond the daily movement prescribed by the commission.

Mr. Donnan's letter and resolution were also presented to the manufacturers, who, after discussion, adopted the following substitute resolution:

Resolved, That we favor transportation rate legislation by the United States Congress; that this legislation shall require transportation companies to make reasonable rates for reasonable service, and that unreasonably slow service shall be paid for at proportionately lower rates.

Meeting Increased Expenses.

Methods of increasing profits to offset the present increased expenses of doing business was a subject which aroused keen interest among the jobbers and evoked very general and suggestive discussion at one of their sessions. The matter was introduced by Fred Fox, Pine Bluff, Ark., who read the following able paper:

The subject, increased expenses demand increased profits, is a proposition so patent on its face that were it not that the subject admitted the question of ways and means it would hardly admit of argument. The high wage idea seems to permeate all branches of business. Never in the history of the country have the wage earners been more completely master of the situation than now.

HIGH COST OF HELP.

A good bookkeeper can command from $100 per month up, and no business can afford a cheap bookkeeper. Good salesmen command from $75 and up, and I find that the men to whom I pay the best salaries are the cheapest. These ideas extend to porters and drivers. In these positions we run colored help, and they can get work any time at what we would have considered excessive wages not long ago, and when we have these fixed expenses worked out to the best of our ability we must see the assessor and then the tax collector and the fire insurance agency; and now here comes the district for paving, sewers and other public improvements that must be met.

EXPENSE TOTALS CAUSE ANXIETY.

So, when we foot up the totals we wonder when the tide will turn and where the money is to come from to pay the expense account. Now, just so sure as we go into business just so sure will we fall heir to these contingencies, to such an extent that when we make our footings at the close of the year we think ourselves fortunate if it does not take more than 10 per cent. of our gross sales to meet them. These are fixed facts, and the burning issue with us all is what is the best way to provide for this feature and leave a reasonable profit on our investments.

HOW NOT TO DO IT.

Negatively, you cannot meet them selling Nails and Wire at a profit that barely pays the expense of handling. You cannot meet them selling Rope, Galvanized Ware and Wood and Willow Ware and other items that the wholesale grocer puts on the market at prices that do not pay the Hardware merchant the expense of doing business; but I wish to say here that I do not indorse the idea that these lines should be cut out of the Hardware merchant's stock. They legitimately belong to us. Let's hold them. But right here is where we need to be thoughtful and bring our brains to bear in the handling of this question. This is the place that we want to draw the line on items I have touched on (I have not mentioned them all) and push those that do help us out and pay their way. Let our salesmen understand that it is

QUALITY OF SALES

and not quantity that you are more particular about—that you think more of the sale of a dozen Razors than 20 kegs of Nails—in other words, to fix their minds and energies on profit paying items and not think so much of trying to sell large bills—carloads, if you please—that pay an exceedingly small percentage—in some cases less than the fixed expense of doing business.

As to the best methods of putting these ideas into effect, I have no doubt they could be responded to intelligently by every member on the floor, our ideas varying largely on account of local environments. As to my own ideas, I say,

SELL THE BEST ARTICLE

in any line that your customer will buy. It will in nearly all cases enable you to realize a better profit and is less apt to get you into trouble. Impress on your salesmen seasonable lines—not too many at a time—that you want pushed specially. Have them take a sample of some novelty occasionally. Put good goods at the disposal of your salesman, and do not be afraid to ask a price for them.

IMPORTANCE OF CO-OPERATION AMONG COMPETITORS.

There is one other idea I wish to mention and that is, let the jobbers doing business in a given territory arrange a meeting once a year and have a heart to heart talk

over trade conditions and prices, and our mistake in being overzealous to get orders. Let's ask and answer questions and I think it will go a long way in blotting out a number of the troubles that perplex us no little and frequently cause unnecessary cutting of prices. The increased expense has come to stay. Let's inject the profit getting idea into our business, not that we may impose on any one, but that we may obtain our honest due, which is a reasonable profit on capital invested.

Mr. Fox's stimulating paper was followed by remarks from several members. It was brought out that theorists who advocate increasing the volume of business to overcome growing expense, lose sight of the fact that there are limits to the possible expansion of the average business, and increased volume is usually purchased by a reduction in the percentage of profit, throwing the merchant back on the original problem. The idea was strongly expressed by more than one member that a great improvement would be effected if all would

STOP SELLING STAPLES WITHOUT A PROFIT

and if each individual concern would discontinue the practice it would be eliminated. The only thing needed, said one, to secure better prices is more backbone and common sense on the part of the jobbers. Much of the trouble was laid at the door of the traveling men, and it was suggested that they should be employed in part, at least, on a percentage basis, allowing a man credit only for such sales as he actually made a profit on.

PROFIT IN SPECIALTIES.

Another speaker declared that many Hardwaremen are making the mistake of their lives in conceding to furniture dealers the sale of Stoves, to Crockery houses certain other lines of goods, to jewelry and department stores other lines. Every article into which metal enters as a basis belongs to the Hardware trade, and the best merchant is he who gets out of the ruts and takes hold of every line that will pay him a profit. The premier Hardware merchant has a way of creating profits out of things, and if we could get on to his mode of doing it we would all make fortunes.

IN REGARD TO GETTING THE PRICE,

one merchant told of his experience last year when a failure of crops made conditions in his territory rather bad. Finding on investigation that his sales were falling off and his profits were being cut down, so that the business was being conducted at a loss, he called in the traveling men, showed them his losses, gave them new prices and impressed upon them the necessity of a new policy all along the line. As a result of special efforts they not only increased profits, but increased their sales as well, and the total year's business showed a handsome profit. Merchants should take their salesmen into their confidence. They should also watch them and call attention to any irregularities in their prices as soon as they occur. If they cut a price 10 per cent. and hear nothing about it they consider it satisfactory, and before long that price is generally ruling. Too much is made of a competitor's price, when probably it is only an isolated case which a salesman has picked up and reported. But his house takes it up and almost immediately the cut becomes general. The remedy for this is for jobbers to get closer together and work with each other to correct differences and increase profits.

Next Place of Meeting.

At the closing meeting of the Jobbers' Association, O. B. Barker, Lynchburg, Va., chairman of the Committee on Next Place of Meeting, reported that a decision had not yet been arrived at. The matter was left in the hands of the committee to be taken up in conference with a committee from the Manufacturers' Association. Vice-President Asbury appointed on the Manufacturers' Committee to consider this subject H. B. Lupton, Robert Garland and Geo. P. Hart.

Election of Officers.

On recommendation of the Nominating Committee the officers of the Southern Hardware Jobbers' Association during the past year were re-elected, with the exception that W. L. Sanford, Roberts, Sanford & Taylor Company, Sherman, Texas, was named on the Executive Committee in place of W. W. Webber, Ft. Smith, Ark., who was made secretary-treasurer. Following is the list of officers for the ensuing year:

PRESIDENT, F. B. Dunlop, Fort Smith, Ark
FIRST VICE-PRESIDENT, R. D. Warren, Memphis, Tenn.
SECOND VICE-PRESIDENT, Frank S. Gray, Jacksonville, Fla.
SECRETARY-TREASURER, W. W. Webber, Fort Smith, Ark.
EXECUTIVE COMMITTEE: O. B. Barker, Lynchburg, Va.; Chas. H. Ireland, Greensboro, N. C.; Bruce Keener, Knoxville, Tenn.; W. L. Sanford, Sherman, Texas.

C. B. Carter, Knoxville, Tenn., who has served efficiently as secretary-treasurer of the association for a number of years, resigned his position, as he expects to change his place of residence and devote his entire time to other interests. W. W. Webber of the Webber-Ayers Hardware Company, Ft. Smith, Ark., who was elected to the office of secretary-treasurer, has served the association as a member of the Executive Committee during the past year and is endowed with exceptional qualifications for his new position. He is an able thinker and writer on trade topics, and contributed papers to the proceedings of both last year's and this year's conventions, his address on "The Effects of Quantity Differentials," delivered at the joint session Wednesday afternoon, appearing in last week's issue of *The Iron Age*. The fact that he is located in Ft. Smith, which is also the home of President Dunlop, will doubtless prove a great convenience to both in conducting the affairs of the association.

Souvenirs.

Quite a number of souvenirs were distributed by manufacturing houses among their jobbing customers and friends:

LIVERIGHT BROS., Philadelphia, Pa.: Manicure Files.
ATLANTIC STAMPING COMPANY, Rochester, N. Y.: Tin Bucket.
SUPPLEE HARDWARE COMPANY, Philadelphia, Pa.: Stick Pin referring to Philadelphia Lawn Mowers.
HOPKINS & ALLEN ARMS COMPANY, Norwich, Conn.: Pistol Stick Pin.
WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Match Box.
READING HARDWARE COMPANY, Reading, Pa.: Handsome metallic Inkstand in fancy box with booklet of Hot Springs.
CORBIN CABINET LOCK COMPANY, New Britain, Conn.: Cuff Buttons.
NORTH BROS. MFG. COMPANY, Philadelphia: Ratchet Screw Driver.
HELLER BROS. COMPANY, Newark, N. J.: Manicure Files and Corn Rasps.
UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn.: Manicure File in cartridge case.
PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Cane in form of Wire Nail.
CARVER FILE COMPANY, Philadelphia: Manicure File in leather case.
SIMONDS MFG. COMPANY, Fitchburg, Mass.: Saw Charm.
YALE & TOWNE MFG. COMPANY, 9-15 Murray street, New York: Paper Cutter.
V. A. MOORE, Atlanta, Ga., representing National-Acme Mfg. Company and Upson Nut Company, both of Cleveland: Pocketbooks and Caliper Rules.
NATIONAL ENAMELING & STAMPING COMPANY, Baltimore: Enamel Pitcher.
E. C. ATKINS & CO., Indianapolis, Ind.: Souvenir Spoons and Cuff Buttons.
ANNISTON CORDAGE COMPANY, Anniston, Ala.: Miniature bale of cotton.
L. & I. J. WHITE COMPANY, Buffalo, N. Y.: Watch Fob.
AMERICAN CAN COMPANY, New York: Smoker's Tray.
REX BUGGY COMPANY, Connersville, Ind.: Watch Charm.
DANA MFG. COMPANY, Cincinnati, Ohio: Stick Pin.
AMERICAN SHEET & TIN PLATE COMPANY, New York: Trick Padlock with key and Pocket Match Box.
NICHOLSON FILE COMPANY, Providence: Manicure File in leather case.
BOSS WASHING MACHINE COMPANY, Cincinnati: Cigar Cutter.
UNITED STATES CARTRIDGE COMPANY, Lowell, Mass.: Pocket Match Box and lithographed booklet illustrating poker scenes.
WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Gun Metal Pocket Match Box.
SAMSON CORDAGE WORKS, Boston, Mass.: Lead Pencil in holder.
RUSSELL & ERWIN MFG. COMPANY, New York: Letter Opener.
ACME WHITE LEAD & COLOR WORKS, Detroit, Mich.: Pocket Flask.

INTEGRITY OF CONTRACTS.

The important subject of integrity of contracts was discussed in the joint session of jobbers and manufacturers Thursday afternoon. The matter was introduced from the point of view of the manufacturers by Alfred Sang, Garland Nut & Rivet Company, Pittsburgh.

Mr. Sang's Address.

The subject of contracts is very difficult to approach and by no means easy of discussion. As it develops it is found to influence every relation between buyer and seller, for contracts regulate and systematize the essential factors of trade: buying and selling.

But, to discuss the integrity of contracts—in other words, their moral soundness—is harder yet. It is a trying matter for any man to stand up and tell how things ought to be done, and why, when he may not always himself act in accordance with his words. Still, if men only preached what they practiced a state of equilibrium would exist and no progress would be possible.

You must accept my opinions as entirely personal and not corporate, and while I may voice the opinion of the majority of manufacturers here present it is in a personal way; the concerns which they represent are compelled to adhere to present day practice, whatever the personal opinions of their officers may be. We are here to improve and influence corporations by personal discussion, personal opinion and personal influence.

We all know what a contract is; I shall not describe it. We must first discover by what standard we are to gauge the value, or rather the validity, of a contract. To have any validity whatever, a contract must be valid in the eyes of the law; to be valid legally it is essential that it be bilateral; in other words, it must create mutual obligations.

WE ALWAYS START OUR CONTRACTS

with the names of the contracting parties. This is the place, the important place, in which to remember that both parties are entering upon this contract on an even footing, with the avowed intention of exchanging considerations of presumably equal value and of dealing fairly with each other. This is where the integrity of a contract begins.

It has been said that one man's rights end only where another man's begin. This is the only possible interpretation of equality of rights, of mutuality. This is the spirit in which we should enter upon our contracts. Is this the spirit of the age? The spirit of the age is to obtain

SOME PERSONAL ADVANTAGE,

all because of the old idea, which is universally rejected and yet persistently applied in action, that one man cannot obtain an advantage without injury to some other man. This may be true in war and love, the one a remnant of barbaric days, the other a law unto itself, but it is not true in commerce, and we all know it and all disregard this knowledge. Where commerce is carried on as a warfare and all rules of honesty and morality are ignored it may cause the overprosperity of one man through the enslavement of others, but I refer to that class of honest, progressive commerce in which alone all of us here are interested.

A country cannot be prosperous unless every class is prosperous. The merchant's prosperity depends in a measure on the prosperity of the manufacturer, and *vice versa*, hence the principle of mutuality which must preside at the execution of a contract is more beneficial to both parties than a one-sided contract is to the man who secures a temporary advantage over the other.

You must excuse my insisting at such length on the importance of mutuality and the necessity of a spirit of mutuality presiding at the very outset of a contract where the names of the parties are entered. I wish to create an atmosphere for the arguments which are to follow.

Every man attaches a great deal of importance to his signature when he indorses it to a check payable to his order, especially if the amount be large. This feeling of importance is intensified when he attaches it to a promissory note or to a sworn statement. The factor which intensifies this feeling of importance we usually call the sense of honor, and we can take it for granted that in this assembly, at any rate, the validity and necessity of the sense of honor in such cases is beyond discussion.

A contract to sell or to buy goods is an express executory document and the principles involved are of the highest order. An easy way for you to realize this is to read carefully the wording of any one of your own contracts when it is being broken at your expense.

A MAN'S HONOR IS AS FULLY AT STAKE

when he attaches his signature to a contract as when he attaches it to a promissory note. If he repudiates or openly or secretly breaks the contract, he dishonors his signature. The financial measure of his action, if he be the buyer, is the manufacturer's profit; if he be the seller, it is the difference between the contract and the market prices. A definite sum of money is at stake and the breach of contract is, therefore, no more or less than an appropriation of another man's money.

Some men may smile at the legal form which some manufacturers adopt for their contracts. This is not a wholesome attitude. Let your contracts be as simple and as short as possible, but give them a legal appearance, and

DO NOT OMIT THE LEGAL PHRASEOLOGY,

for that is just what will help you and the person with whom you make the contract to remember that the signature is not a mere dash of the pen, but a serious undertaking, in which the integrity of a name and of a reputation are at stake.

Allow me to insist on the importance of giving our contracts a serious and legal form, if only as a help to remove present day laxity; to impress the mind with its importance and dignity. Furthermore, that it be clearly understood that the honor of the firm is as fully at stake as when the signature is attached to a statement duly sworn to—that the absence of the notary's seal does not make honorable that which is legally dishonorable.

And, therefore, do not leave the signing of a contract to any one. Even a buyer should not sign a contract unless it be countersigned by a director of his company. Do not intrust the safeguarding of the honor of your firm to those who are not appointed for this purpose. Buyers, whether for manufacturing or jobbing concerns, are hard workers, and hard workers are very inclined to be overzealous—when zeal acquires such a momentum that it overshoots the narrow boundaries of right and lapses into wrong.

Let me add as a corollary that the man who signs the contracts is the one who should cancel them, if cancellation becomes necessary.

A BREACH OF CONTRACT

is bound to be a most potent demoralizer and a shield for all kinds of malpractices; malpractices which in many quarters are accepted as regular routine business; fixed habits which drug our sense of right during six days of the week and create a distinct commercial personality; a lazy personality though outwardly active, which selects the easy but devious method in preference to that which requires concentration, patience and Sunday morals on week days. As Franklin once said, "Tricks and treachery are the practice of fools that have not wit enough to be honest." Happily, abuses sooner or later create reaction which awakens social self consciousness.

A contract which is binding on the seller alone, and allows the buyer to withdraw if the market weakens, or gives him the equivalent privilege of getting the benefit of the market, is not a contract in any sense whatever; it is a jug-handled arrangement which encourages disloyalty and destroys confidence, confidence which is the very soul of profit.

CONFIDENCE.

Let me dwell on that word confidence, which I have just described as the soul of profit and, therefore, the soul of material prosperity. When a man has confidence in you he trusts your word, he has faith in your written statement, he relies on the integrity of your character—nay, more than this, he believes that you have confidence in him. Here we have mutuality again. A man has confidence in you because he believes that you have confidence in him.

We are therefore mightily interested in finding out how this mutual confidence is to be brought about. It is right in the contracts which we make. If from his experience a man knows that you steadfastly adhere to your agreements he will give you his confidence. We talk of our confidential clerks, we have confidence in their integrity but do not attach much importance to their integrity in their relations with others; hence it is that we so often find that the most confidential employees are the ones who abscond with the funds or cook their books. We expect our men to be straight but crooked, truthful to us and lying to others, and in every respect different from what we would have our own children be, until, of course, we take them into the firm.

POUNDING OF PRICES BY JOBBERS.

I must now say a few words about prices, which, after all, are responsible for the existence of our contracts. It is said that competition is the cause of the close prices ruling nowadays on standard articles of Hardware. This is only one cause. There is another no less active cause, which is, moreover, far less legitimate; in fact, not legitimate at all, and must be eradicated, if the task is, as I believe, within the limits of our power. I refer to the persistent pounding of prices by buyers for jobbing houses, usually by means which I might qualify in one word, but won't. The pounding of prices means the pounding of quality; the one is the concomitant of the other, and while the first injures the manufacturer most the second does no less an injury to the dealer and to the consumer.

The action of telling a plain, barefaced falsehood, in order to obtain a more favorable price is nowadays re-

garded with almost complete indifference. That a man

SHOULD SELL HIS HONOR,

that any man should sell a particle of that stuff of which his character is made, is one of the very worst features of modern commercialism. Yes, gentlemen—manufacturers and merchants alike—whenever you secure a special price by illegitimate means, whenever you steal a discount to which you are not entitled, you belittle yourselves by taking away from your character. Many contracts are made solely with the view of taking an illegitimate advantage in regard to price.

It is, of course, perfectly legitimate to say: "We can get these goods elsewhere at your price; and we, therefore, prefer to buy on an open market," but it serves to show the spirit which animates a majority of buyers. Even on a low market the buyer is so confident of being able to use his "big stick" with efficacy when prices go up that he does not consider it of the slightest advantage to make a contract. "We want you to protect us," says the merchant to the manufacturer after his buyers have "beared" the market to a point where the manufacturer has no margin left wherewith to protect him.

THE JOBBERS' VIEW OF A CONTRACT

is in glaring contrast with the view taken by manufacturers in their relations among themselves. We manufacturers of Hardware buy steel and other raw material on contracts, and while I hesitate to say that all of us are beyond reproach in our methods of obtaining prices, I shall not hesitate to say that once our contracts are signed we stand loyally by our signatures and seek no favors outside of those which may be necessitated by circumstances beyond our control, such as strikes and fires. If the market declines, to use a common expression, "we take our medicine."

DIFFERENT ATTITUDE OF LARGE CONSUMERS.

Another contrast is to be found in the general respect of contracts shown by consumers of our finished goods whenever they buy direct. If they are covered for the season and you come at them with a proposition which is lower on account of a decline in the market they will almost invariably write back that they are not interested because they have contracted until a certain date. I can hardly describe to you the feeling of respect which such a reply has always given me, a respect which in time must necessarily redound to the advantage of the consumer.

When he thinks he can thereby get additional protection, how ready the jobber is to make a new contract, and in most cases without so much as advising the manufacturer with whom he breaks faith. I do not speak here of individual jobbers. This seems to be a failing of the fraternity, and is no doubt due to conditions which the jobber alone can explain. Let him explain, and we can perhaps help him to meet our wishes and reap the benefits of our increased confidence.

Are we to wonder that it is the loyal buyer, the consumer, who is increasing his allowance of favors, whereas the differentials to the jobber dwindle and contracting periods are cut down?

I am speaking frankly, because it is our desire to better these conditions, to give you greater margins, to protect your profits if you will only protect ours. This can be done, and loyalty alone will do it, but we must not only be loyal here, but also when we get back to our desks.

WE ASK FOR MORE LOYALTY,

and in return we will give you better margins, and we will back you in any warrantable stand against new forms of competition, for your interests will be our interests, your profits part of our profits. But now, alas! your profit is our loss, and while we would like to help you, common sense—not to speak of our stockholders—warns us that we must apply the full force of the Golden Rule and disregard your interests as you disregard ours.

Let me say most emphatically that it is the earnest wish of the manufacturers of Hardware, and especially of those represented at this convention, to market their goods through the jobbers; that is why they are here today. But it is for the jobbers to guide the evolution of our trade relations. Without their guidance we are helpless in our endeavor to bring about the very conditions for which these joint meetings have been instituted.

CONTRACTS FOSTER THE MAINTENANCE OF PRICES,

than which there is no more interesting question to the manufacturers. The manufacturers expect to make the prices; it seems to me that they are entitled to this. One reason alone is sufficient. They are the only ones to know the cost of their goods. Goods are periodically sold below cost, and when the manufacturers attempt to improve prices buyers are often led to believe that they are taking an undue advantage—trying to make too much money. Then the pounding of prices and of good feeling begins, without any possible advantage to either side. I am not betraying an open secret when I state that manufacturers of staple articles of Hardware cannot make much money under present conditions. What will this lead to? Concentration, of course. And what will concentration mean in regard to contracts? Your experiences in dealing with the very large corporations with their up to date organizations will supply the answer.

ONE OF THE FORMS OF PROTECTION

has been to limit the contracting period. Sixty days is becoming quite common. The reason for limiting the period really belongs to another subject at present under discussion between manufacturers and jobbers. I will merely say that were it not for jobbers' stocks manufacturers would be able to get the increased prices to which they are entitled by reason of increases in the prices of raw materials. Jobbers' stocks would not interfere if prices were maintained.

THE QUESTION OF DIFFERENTIALS

is entirely bound up in the question of contracts. Differentials will not increase as long as the status of contracts is not improved. The present outlook is that differentials are going to shrink, they are going to disappear, and the display of ingenuity to obtain cut prices is going to increase and will create a gulf of bad feeling between us. We stand little chance of escaping the danger if we close our eyes, so let us face the issue, unattractive as it may appear.

On the other hand, if contracts are respected and their integrity guarded, differentials will be allowed which will bring joy to your heart and profit to your pocket. As distributers of manufactured goods you should be a part of the manufacturing system, and we should—and we shall—put our heads together to cultivate our joint profit. We manufacture the goods, and therefore

WE MANUFACTURE THE PROFITS;

if you take all the profit it does not pay us to keep on manufacturing it; it compels us to look for a different channel for the marketing of our product. As I have stated before, we want to do business with you, we are here for it, and we ask you to meet us half way.

Again I say, let us remember mutuality, let us protect each other, and realize the necessity for the integrity of our contracts, and the rest will take care of itself. Merchants will not only be able to make contracts for longer periods, but on a rise they will make money by reason of the rise. At present their dwindling profits are the barometer of the dwindling profits of the manufacturers.

I can add but little to what I have already said. The integrity of contracts commences with the spirit presiding at the execution of the document itself—hence the utility of its being both an expressive and impressive document.

THERE IS NO SENTIMENT IN MULTUALITY;

it is a commercial law, paramount to a law of nature that the greater the manufacturer's profit, the greater the jobber's. Do not allow buying to degenerate into bargain hunting.

I will reiterate the necessity of contracts being signed by responsible officers of the companies to guarantee their integrity. I will also say that the matter of contracts is bound up with the question of restricting prices and conditional selling, questions which would not exist, which would never have arisen, were there more loyalty. We are here to cultivate this loyalty. But our loyalty must not cease when we leave Hot Springs. We must take it with us to our offices and constitute ourselves fearless leaders of commercial integrity.

One thing at a time is a safe rule. Let me therefore express the opinion, in conclusion, that the signing of all contracts by responsible officers and directors will do more to promote the integrity of contracts than the concentrated moral efforts of all the preachers in Christendom.

Charles H. Ireland's Paper.

Following Mr. Sang's address, it was intended to have the subject discussed from the jobber's point of view, and an able paper was prepared by C. H. Ireland, Odell Hardware Company, Greensboro, N. C. The paper was not read, owing to the lateness of the hour, but by courtesy of the author we are able to give it below:

I do not know why I was put up to discuss this subject, as I know of no instance in which I have been called upon to defend my position or to explain my reason for failure to fulfill a contract. But the mere fact that this subject has been deemed of sufficient importance by both manufacturers and jobbers to entitle it to a place on the programme of this convention necessarily leads to the conclusion that there is either a willful lack of sincerity in the carrying out of agreements, or else custom has permitted latitude that has grown into license, or else the

term contract as used in the conduct of general business to-day has a wider meaning as to its scope, and lacks that definiteness and minuteness which formerly characterized that which was known as a contract.

NO LACK OF SINCERITY.

1. Is there a lack of sincerity in the carrying out of agreements to-day? I answer most emphatically No! Never in the history of the world was there a time when the average man in business was so true, so reliable, so dependable as to-day. And I make this statement with the full knowledge that there never was a time in the history of the world when the exposures and evidence of rascality were as prevalent as in this present year 1905 and 1906.

There is not a man on this floor to-day who does not feel that in 999 cases out of 1000 the man with whom he transacts his usual business contract can be depended upon to live up to it. And that he does do it in the above proportion without having to invoke the aid of outside help to enforce same is a refutation of the first question. For, in nearly every instance if outside aid was invoked in order to force compliance, it would avail him naught, because the average so-called contract is meaningless and not binding, and does not have to be, because the parties feel themselves amenable to a high court, that of trade rectitude, and the value of a good name, which most houses in business in these days regard as of far more value than riches. I affirm there is no lack of sincerity in carrying out agreements and contracts in the legitimate business world to-day.

LICENSE TRUE OF BOTH.

2. Custom has permitted latitude that has grown into license. License taken by one? Nay, both!

Let's see, I'm a Hardware manufacturer of New England. I start in February in Texas to sell a commodity which is used in October. I start thus early because it saves traveling men. One or two can cover the territory to work the Southern jobber, and by June I will have them all corralled, and I can then use these same salesmen to beguile the Big Ikes of the larger centers. Not to sell goods? No, no. But simply to say, Howdy do! to the department stores and catalogue houses, and to pay social visits to large retailers, who happen to have rather a large purchasing power, and consequently do not wish to buy of a jobber. No valid objection could be raised? Of course not. It's just custom, you know.

Well, now let's follow this Knight of the Grip: As no one in the South knows what the price of these goods will be, or what the crops will enable him to sell, it is a case simply of pig in the bag for Mr. Jobber. Of course, if he is in Texas the price will be made right, or they'll shoot it out. In New Orleans it makes no material difference, as it will be a year after the transaction is completed before they'll find it out; in Mississippi it will have to be right or a lynching bee will be called off on the next visit to that town; in Alabama they are always ahead, keep there so as to shut off Pittsburgh, you know; in Georgia, Tennessee, North Carolina and Virginia they all just sit and wait patiently for the next thing to turn up from St. Louis, Louisville or Philadelphia, and by that time they will begin to know where they are.

A DIALOGUE.

(Enter Mr. Knight of the Grip) Well, Mr. Jobber, I want to sell you 20 carloads of Gimlets.

Mr. Jobber, amazed, says meekly: Why, that's more Gimlets than I can possibly use.

Oh, no! Mr. Jobber, I've just sold 100 cars in St. Louis, 78 cars in Louisville, 100 cars in Chicago. I'm giving you the identical prices that I sold them; and, confidentially, a little the rise of them.

So Mr. Jobber meekly asks: But what's the price of Billets?

Oh! I don't know.

What's the price of coal? What about the labor market? What's going to be the status of the wheat crop? What is the estimated nightly increase of the Boll Weevil?

Oh, these are matters that should not trouble you. It's your business to buy, buy, buy goods, man.

But, Mr. Drummer, I have not seen another line, I do not know their prices.

Now, Mr. Jobber, that is just where we come in. Here's a contract, read:

I, John Smith, jobber, hereby agree and bind myself, my successors and assigns, to buy 20 carloads of Gimlets from Nathan Doe, manufacturer, agreeing to pay said Doe $2 a dozen for same, payable in New York exchange, 30 days net, f.o.b. factory. And in the event of said Smith failing to take above quantity and to pay for same in specified time, then the said Smith is to be abjured, sued and pursued until he takes said quantity, and in the event of his not paying for same as agreed then it is herein stipulated that said Doe shall possess himself of such property and values as may be in said Smith's possession, and keep same in proportion as it may be satisfactory to said Doe. It is further stipulated and agreed that this contract is subject to the following condition: That should said Doe find it more profitable to ship his goods to some other territory, or if his firewood should run short, or if his workmen should go fishing, or the wild geese should delay their yearly migration, without good and valid reason to the said Doe, then this contract shall be binding upon only one of the parties—i. e., Smith.

But as a special favor to said Smith and as a generous act of manufactured benefaction, it is agreed that should said Smith have same style and quality of Gimlets offered by more reputable concerns at anything under 50 per cent. less than the price made by said Doe, then it shall be the duty of said Smith to report the name of manufacturer, color of his hair, cut of beard, time of day when such prices were made, and what brand of bug juice he used when they repaired to the private locker for inspiration. And in the event said reports are found to be true, then said Doe will either reserve the right to meet such cut, or else to tell said Smith he is a fool or a liar and not to be so suspicious of every little fluctuation in the market.

And right here is where lots of trouble is created in business day by day. And there is not a manufacturer here who manufactures long time articles who has anything like a formidable competition that is not in a degree doing the like of it. No doubt this is overdrawn to some degree, it is like so many of your so-called contracts, it is intended to cover a multitude of sins and yet cannot be considered specific or personal in its construction. The fact is, any kind of a contract is a mighty good one as long as it comes the way of the fellow who makes it. The so-called blanket contract was devised in the days of excessive competition in order to get rid of over production, for which there was no excuse, except keeping up with the other fellow. It is continued to-day by big concerns to shut out the small manufacturer.

Read the top clause of every one, and see if it does not read, "Taken subject to strikes, failures, fires, floods, climate changes, dope injections, intemperate zeal, and other causes beyond our control." The first half of the agreement is to bind the buyer, the other half is to release the seller, and in every instance the contract is not what holds but the contractors themselves who are honestly trying to do the fair honest thing, and the contract is simply a sign that the two parties have agreed to mutualize their interest, and as long as this is faithfully adhered to there will never be heard any such thing as noncompliance with contracts. The best way to make honest clerks is to be honest one's self. The best way to protect one's interest is to regard the other fellow's interest, and the best way to prevent the violation of a contract is to make one you can respect and honor yourself.

IS THE JOBBER NECESSARY

to the manufacturer and the manufacturer to the jobber? If so, is it not time to stop this waste of effort and energy in our endeavor to decry the interest of our mutually best friends? Now, there are manufacturers with whom I've done business for 25 years without a hitch or misunderstanding, transactions amounting to thousands of dollars per year; while there are others with whom I scarcely did anything without a row at settlement time.

A man called to see me representing a large manufacturer a few days since proposing to sell me certain goods. I told him pleasantly I could not buy from him at all. When pressed for my reasons, I replied: "Well, your man thinks I am not honest. I know he is not honest, and for that reason I prefer doing business with others." This may sound rather blunt, but is it not better than to continue business relations when the principals have not faith in each other? Ninety per cent. of the distress in commercial life is due to the mistakes or selfishness of the manufacturer, not conscious, I verily believe, in many instances, but nevertheless true.

A WIDE SCOPE.

3. The term contract has a wide meaning and lacks definiteness. Let's enumerate some of them:

I hereby contract to buy my supply of such and such articles from you for this season, price guaranteed.

I hereby contract for my needs for 1906.

You can enter my order for my needs for 1906, terms so and so, with privilege of meeting lower prices or canceling same.

I hereby agree to buy my goods of you at 40 per cent. and to sell them at no less than 40 per cent., and allow you, Mr. Manufacturer, to determine what profit I shall make on them, which may amount to 10 per cent., although it costs 20 per cent. to sell them.

I hereby contract for your goods and to sell them at the net invoice price. Confidentially, the rebate may net 12, 15 or 20 per cent. You are expected to get more than the net invoice, although the manufacturers have printed these prices in the trade paper and sent broadcast throughout the country with the intimation that the sharp buyer can get a better price if he will contend for it. And when settlement is made the liberal manufacturer finds 10 per cent. is enough for the jobber.

I hereby contract to take so many kegs of blank items, conditioned upon my receiving blank rebate when I have taken out 5000 kegs. But my customer can buy 25 kegs under the name of a fictitious jobber and get the same rebate any day in the year except the Fourth of July, Thanksgiving and Christmas.

I hereby agree to buy all my blank ware at 25-12½-7½-5-5-5-5, knowing that the catalogue house and department store purchasers get 5 per cent. better.

I hereby agree to purchase 500 tons of goods at blank price and to sell the same in specified time, to *small trade only*. But should any of my trade under judicious management attain the degree of raising his eyes to the hights of a manufacturer's pedestal, or should he by accident or otherwise write said manufacturer for quotation, it is stipulated and agreed that such a customer has passed the point of being handled by a jobber and is from this time forth the special protégée of the goggle-eyed, pug-nosed, wax-mustached, hair-parted individual known as special sales manager. But under no conditions or circumstances is the tonnage sold to such customer to be deducted from the jobber's original contract.

I hereby agree to purchase blank tons of goods from blank manufacturer, whose prices at the time contract is made are as low as any one, and in order to facilitate the handling of these goods a special advantage will be given each month in proportion to the purchases of contractor, with the proviso, however, that should the purchaser fail to buy all of his goods from this company during his natural life or fail to leave instructions for his successor to continue to do the same in the event of his death then the purchaser shall forfeit all rights to his claims upon the special bonus set aside for him, and he shall be deemed not entitled to same, notwithstanding the prices charged by this company may be higher than any other worthy competitor. The bonus is to be considered a special policeman's billy to correct recalcitrant buyers, and to keep them from straying too far away from the trusting fold. It is agreed by the buyer that the seller shall be entitled to contract with any retailer in said jobber's territory at jobber's prices if said retailer can scrape together sufficient orders to buy a carload of goods.

MUTUAL GOOD FAITH.

And so on and so on I could continue ad infinitem; but why take your valuable time? There are contracts and contracts. And we are from the nature of the evidence lead to the conclusion that the term contract has a wider meaning than it once had and lacks definiteness. There are too many insurance lawyers used in writing the forms. A few years ago a leading Pittsburgh man employed a noted corporation lawyer to draw up a contract so strong that no one could break it, and for which he was paid the record breaking fee for it up to that time. But that honor was short lived, for no sooner had the senior partner left the country than his junior employed the same attorney to break this unbreakable contract, which he proceeded to do. And when the irate senior returned and confronted his lawyer with the query, "I thought you said that contract could not be broken?" he replied, "Yes, I did not think any one could when that was written, but the world is progressing, and Mr. Junior employed me, paying a bigger salary to break it than you did to make it." The result was that the contract was abandoned, and senior and junior found they were each necessary to the other, agreed as sensible men to cooperate on the basis of mutual good faith in each other, and that action on the part of those men makes it possible for this meeting to be held to-day.

We contract for Axes, for Brushes and Churns,
For Dusters, Escutcheons, Files and for Guns,
For Hatchets and Iron, Jack Screws and Kettles,
Lanterns and Mallets, Netting and Oilers.

For Pencils and Quoits, Rat Traps and Skates,
For Tin Plates and Umbrellas, Vises and Vases,
Wax Dressing, Ox Yokes and New Zealand Grasses—
We work for manufacturers who dub us their asses.

There are contracts and contracts, some shoddy, some true,
As there are many bad people and good ones not a few;
But to bind a man closely, steady and strong,
Be sure of yourself you intend him no wrong.

For whether you intend it to be that way or no,
The other fellow will go you just one better for sure.
Then away with your contracts, just give me a man
Whose word is his contract, once given it will stand.

THOSE IN ATTENDANCE.

F. Herbert Smith, Nicholson File Company, Providence, R. I.
C. M. King, McKinney Mfg. Company, Pittsburgh.
Charles H. Parsons, P. & F. Corbin, New Britain, Conn.
Samuel Disston, Henry Disston & Sons, Philadelphia.
Henry C. Disston, Henry Disston & Sons, Philadelphia.
H. P. Chenoweth, Norwalk Lock Company, South Norwalk, Conn.
Daniel K. Stucki, White Mountain Freezer Company, Nashua, N. H.
Chas. Glover, Corbin Screw Corporation, New Britain, Conn.
T. W. Gathright, C. E. Jennings & Co., New York.
J. H. Keating, American Cutlery Company, Chicago.
John G. H. Marvin, L. & I. J. White Company, Buffalo, N. Y.
J. H. Dillon, L. & I. J. White Company, Buffalo, N. Y.
H. P. Mack, Mack & Co., Rochester, N. Y.
Geo. H. Harper, National Enameling & Stamping Company, Baltimore, Md.
A. R. Sisson, Russell & Erwin Mfg. Company, New Britain, Conn.
C. D. Parsons, P. & F. Corbin, New Britain, Conn.
A. C. McKinnie, Stanley Works, New Britain, Conn.
Louis E. Dietz, Boss Washing Machine Company, Cincinnati, Ohio.
Edward Dietz, Boss Washing Machine Company, Cincinnati, Ohio.
Conrad Dietz, Boss Washing Machine Company, Cincinnati, Ohio.
D. H. Goodell, Goodell Company, Antrim, N. H.
R. C. Goodell, Goodell Company, Antrim, N. H.
F. M. Huggins, Landers, Frary & Clark, New Britain, Conn.
T. B. Hendrickson, Reading Hardware Company, Reading, Pa.
W. P. Smith, Mead & Smith, Rogersville, Tenn.
Robert Garland, Garland Nut & Rivet Company, Pittsburgh.
Wm. H. Hays, Iron City Tool Works, Pittsburgh.
John S. Sanders, Union Metallic Cartridge Company, Bridgeport, Conn.
Edward W. Lee, Winchester Repeating Arms Company, New Haven, Conn.
H. W. Caldwell, Cleveland Stone Company, Cleveland, Ohio.
A. W. Bond, Goodell Company, Antrim, N. H.
G. B. Nichols, Landers, Frary & Clark, New Britain, Conn.
T. T. Connors, United States Hoe & Tool Company, Columbus, Ohio.
D. A. Merriman, American Steel & Wire Company, Chicago.
H. J. McCue, American Steel & Wire Company, Chicago.
Frank B. Smith, McKinney Mfg. Company, Pittsburgh.
J. W. Gates, Enterprise Mfg. Company, Philadelphia.
A. W. Peck, Jr., Sargent & Co., New York.
A. C. Albrecht, North Bros. Mfg. Company, Philadelphia.
N. A. Gladding, E. C. Atkins & Co., Indianapolis, Ind.
Geo. E. Eddy, Lockwood Mfg. Company, South Norwalk, Conn.
C. W. Griswold, Corbin Screw Corporation, New Britain, Conn.
Chas. P. King, American Iron & Steel Mfg. Company, Lebanon, Pa.
H. L. Wilson, Acme White Lead & Color Works, Detroit, Mich.
E. E. Perry, Hopkins & Allen Arms Company, Norwich, Conn.
Geo. L. Haven, P. & F. Corbin, New Britain, Conn.
M. L. Corey, secretary National Retail Hardware Association, Argos, Ind.
Wm. K. Stone, Cambria Steel Company, Johnstown, Pa.
F. S. Seeley, Challenge Cutlery Corporation, Bridgeport, Conn.
Fred. S. Merrick, Standard Horse Nail Company, New Brighton, Pa.
J. J. Andrews, American Sheet & Tin Plate Company, Pittsburgh.
H. M. Shepler, American Sheet & Tin Plate Company, Pittsburgh.
V. L. Bradford, C. C. & E. P. Townsend Company, New Brighton, Pa.
Wm. A. Corry, J. C. McCarty & Co., New York.
Irby Bennett, Winchester Repeating Arms Company, New Haven, Conn.
C. W. Plumb, Eagle Lock Company, Terryville, Conn.
Isaac G. Haas, Empire Plow Company, Cleveland, Ohio.
Fayette R. Plumb, Fayette R. Plumb, Incorporated, Frankford, Philadelphia.
Charles H. Wier, Wier & Wilson, Baltimore, Md.
Edward Ingalls, Atha Tool Company, Newark, N. J.
C. W. Asbury, Enterprise Mfg. Company, Philadelphia.
Geo. T. Knight, Tubular Rivet & Stud Company, Boston, Mass.
C. H. Durham, E. C. Atkins & Co., Indianapolis, Ind.
Chas. M. Avery, Union Metallic Cartridge Company, Bridgeport, Conn.
F. M. Vosburgh, Atlantic Stamping Company, Rochester, N. Y.
H. G. Sudell, Atlantic Stamping Company, Rochester, N. Y.
J. B. Parrent, Yale & Towne Mfg. Company, New York.
Jos. M. Hottel, Delta File Works, Philadelphia.
D. P. Hale, John Chatillon & Sons, New York.
Louis A. Tranberg, John Chatillon & Sons, New York.
R. R. Williams, *The Iron Age*, New York.
S. S. Reckefus, *The Iron Age*, Philadelphia.
A. H. Chamberlain, *The Iron Age*, New York.
Frank R. Blauvelt, R. K. Carter & Co., New York.
H. F. Reese, Fairbanks Scale Company, Baltimore, Md.
Geo. L. Corbin, Corbin Cabinet Lock Company, New Britain, Conn.
W. H. Booth, Corbin Cabinet Lock Company, New Britain, Conn.
Thomas E. Parnell, Crucible Steel Company of America, Pittsburgh.
V. A. Moore, National Acme Mfg. Company, Cleveland, Ohio.
O. C. Mead, Mead & Smith, Louisville, Ky.
J. E. Kelley, Simonds Mfg. Company, Fitchburg, Mass.
F. I. Clark, Iver Johnson's Arms & Cycle Works, Fitchburg, Mass.
W. A. Shepard, Iver Johnson's Arms & Cycle Works, Fitchburg, Mass.
Robert N. Peck, Stanley Rule & Level Company, New Britain, Conn.
Robert M. Parsons, Stanley Rule & Level Company, New Britain, Conn.
Samuel V. Armstrong, Stanley Rule & Level Company, New Britain, Conn.
A. M. Kinsley, Oneida Community, Oneida, N. Y.
Geo. N. Holton, Bryden Horse Shoe Company, Catasaqua, Pa.
Julius C. Birge, St. Louis Shovel Company, St. Louis.
Howard A. Hart, Stanley Works, New Britain, Conn.
John C. Oliver, Oliver Iron & Steel Company, Pittsburgh.
Henry B. Lupton, Oliver Iron & Steel Company, Pittsburgh.
F. D. Mitchell, secretary American Hardware Manufacturers' Association, New York.
Harry Wise, the *Tradesman*, Chattanooga, Tenn.
Max I. Barth, the *Tradesman*, Chattanooga, Tenn.
Wallace L. Pond, Nicholson File Company, Providence, R. I.
Geo. J. Baker, American Screw Company, Providence, R. I.
C. A. Earl, Corbin Screw Corporation, New Britain, Conn.
H. E. Haynes, Savage Arms Company, Utica, N. Y.
Jos. L. Hemp, Hemp & Co., St. Louis.
E. A. Kellogg, Stephenson Mfg. Company, Albany, N. Y.
S. B. Bispham, Russell & Erwin Mfg. Company, New Britain, Conn.
T. H. Keller, Peters Cartridge Company, Cincinnati, Ohio.
C. F. Forsyth, Meriden Cutlery Company, Meriden, Conn.
C. F. Carrier, Cronk & Carrier Mfg. Company, Elmira, N. Y.
J. B. Sullivan, Jr., Towers & Sullivan Mfg. Company, Rome, Ga.
H. A. Dean, Towers & Sullivan Mfg. Company, Rome, Ga.

Alfred Sang, Garland Nut & Rivet Company, Pittsburgh.
E. D. Starke, Starke & Dixie Plow Works, Richmond, Va.
Graham B. Hobson, Tredegar Company, Richmond, Va.
J. Scott Parrish, Richmond Cedar Works, Richmond, Va.
Louis G. Beers, New Jersey Wire Cloth Company, Trenton, N. J.
E. C. Feriday, E. I. Du Pont Company, Wilmington, Del.
Thos. O'Brien, Hopkins & Allen Mfg. Company, Norwich, Conn.
E. G. Jaques, American Steel & Wire Company, New York.
J. C. Beggs, Bemis & Call Hardware & Tool Company, Springfield, Mass.
Wm. Taylor, Pittsburgh Steel Company, Pittsburgh, Pa.
A. C. Barrell, Union Metallic Cartridge Company, Bridgeport, Conn.
A. H. Meyerhoff, Union Metallic Cartridge Company, Bridgeport, Conn.
C. W. Dimick, United States Cartridge Company, Lowell, Mass.
A. W. Child, United States Cartridge Company, Lowell, Mass.
E. J. Dimick, United States Cartridge Company, Lowell, Mass.
Lester A. Thurber, White Mountain Freezer Company, Nashua, N. H.
H. S. Mirrielees, Manning, Bowman & Co., Meriden, Conn.
Geo. P. Hart, Stanley Works, New Britain, Conn.
Chas. F. Aaron, New York Leather Belting Company, New York.
Walter W. Birge, St. Louis Shovel Company, St. Louis, Mo.
J. A. Carter, American Fork & Hoe Company, Cleveland, Ohio.
W. H. Matthai, Jr., National Enameling & Stamping Company, Baltimore, Md.
Arthur K. Liveright, Liveright Bros., Philadelphia.
Paul E. Heller, Heller Bros. Company, Newark, N. J.
W. W. Lyons, Heller Bros. Company, Newark, N. J.
J. W. Ryan, P. & F. Corbin, New Britain, Conn.
F. E. Muzzy, J. Stevens Arms & Tool Company, Chicopee Falls, Mass.
John C. Schmidt, Standard Chain Company, Pittsburgh.
A. Eugene Bolles, *American Exporter*, New York.
H. C. Schaaber, Chantrell Tool Company, Reading, Pa.
H. L. Geissel, Rex Buggy Company, Connersville, Ind.
E. A. Moore, Stanley Works, New Britain, Conn.
G. V. Willson, Hussey-Binns Shovel Company, Pittsburgh.
J. H. Grubb, Hussey-Binns Shovel Company, Pittsburgh.
J. R. Gilfillan, Hussey-Binns Shovel Company, Pittsburgh.
Harry D. Harvey, National Supply Company, Baltimore, Md.
Wm. W. Hulfish, Henry Keidel & Co., Baltimore, Md.
Jas. Hutchinson, Stanley Works, New Britain, Conn.
O. M. Milligan, Reading Hardware Company, Reading, Pa.
C. S. Packard, Reading Hardware Company, Reading, Pa.
Dwight Divine, Dwight Divine & Son, Ellenville, N. Y.
Edward Whitehead, Walden Knife Company, Walden, N. Y.
G. H. Jantz, American Wringer Company, New York.
R. Luerssen, Reading Hardware Company, Reading, Pa.
J. C. McDonald, Reading Hardware Company, Reading, Pa.
George F. Dana, Dana Mfg. Company, Cincinnati, Ohio.
Frank M. Snook, Dana Mfg. Company, Cincinnati, Ohio.
L. W. Stewart, Dana Mfg. Company, Cincinnati, Ohio.
Wm. H. Matthai, National Enameling & Stamping Company, Baltimore, Md.
J. W. Pentz, *Hardware*, New York.
Jas. H. Marshall, Baeder, Adamson & Co., Philadelphia.
J. S. French, Peters Cartridge Company, Cincinnati, Ohio.
T. H. Taylor, American Steel & Wire Company, New York.
James H. Kennedy, *Hardware Dealers' Magazine*, New York.
Geo. D. Kirkham, American Steel & Wire Company, Chicago.
Geo. T. Price, Kelly Axe Mfg. Company, Charleston, W. Va.
H. T. Hunter, Toronto, Canada.
Gus T. Boutwell, Standard Horse Shoe Company, Boston.
James P. Kelly, Kelly Axe Mfg. Company, Charleston, W. Va.
C. H. Bennett, Daisy Mfg. Company, Plymouth, Mich.
A. W. Chaffee, Daisy Mfg. Company, Plymouth, Mich.
J. H. Faxon, Grafton Stone Company, Elyria, Ohio.
N. L. Durell, American Fork & Hoe Company, Cleveland, Ohio.
Frank G. Drew, Winchester Repeating Arms Company, New Haven, Conn.
C. S. Lawrence, W. B. Fox & Bro., New York.
Newton Kelsay, Newton Kelsay, Evansville, Ind.
Hobart Ames, Ames Shovel & Tool Company, Boston.
S. S. Early, Ames Shovel & Tool Company, Boston.
S. G. Gilfillan, Belfont Iron Works Company, Ironton, Ohio.
Wm. B. Penfield, Hamilton Rifle Company, Plymouth, Mich.
W. H. Glatt, N. Y. Leather Belting Company, New York.
W. B. Lashar, Bridgeport Chain Company, Bridgeport, Conn.
Frank C. Graham, Graham-Phillips Horse Shoe & Iron Company, Cincinnati, Ohio.
J. H. Towne, Yale & Towne Mfg. Company, New York.
A. W. Clark, Yale & Towne Mfg. Company, New York.
A. T. Babcock, Yale & Towne Mfg. Company, New York.
Cyrus Reiner, American Fork & Hoe Company, Cleveland, Ohio.
T. B. Coles, American Steel & Wire Company, Chicago.
J. Graham Davidson, Cameron Stone Company, Richmond, Va.
John H. Collier, 3d, G. & H. Barnett Company, Philadelphia.
E. Warren Smith, Pike Mfg. Company, Pike, N. H.
Geo. W. Connor, Atlanta Steel Hoop Company, Atlanta, Ga.
S. S. Paul, Atlanta Steel Hoop Company, Atlanta, Ga.
Clement M. Biddle, Biddle Purchasing Company, New York.
Chas. T. Johnson, Dover Mfg. Company, Canal Dover, Ohio.
J. P. Tabb, Ames Shovel & Tool Company, Boston.
B. C. Summer, American Can Company, New York.
C. W. Hellis, E. I. Du Pont Company, Wilmington, Del.
John J. McElroy, Standard Scale & Supply Company, Pittsburgh.
B. A. Hawley, Russell & Erwin Mfg. Company, New Britain, Conn.
W. H. Hoagland, Findlay Axe & Tool Company, Findlay, Ohio.
W. A. Chenoweth, Birmingham, Ala.
J. L. Evans, American Fork & Hoe Company, Cleveland.
J. M. Wood, O. Leschen & Sons Rope Company, St. Louis.
C. M. Power, Seneca Chain Company, Kent, Ohio.
Jno. K. Wilson, U. S. Hame Company, Buffalo, N. Y.
T. E. Oliver, Oliver Bros. Purchasing Company, New York.
T. James Fernley, secretary-treasurer National Hardware Association, Philadelphia.
Daniel Stern, *American Artisan*, Chicago.
C. H. Angell, Union Hardware & Electrical Supply Company, Providence, R. I.
O. B. Barker, Barker-Jennings Hardware Company, Lynchburg, Va.
H. S. Perkins, Belknap Hardware & Mfg. Company, Louisville, Ky.
H. H. Beers, Richmond, Va.
John Donnan, W. L. Donnan Hardware Company, Richmond, Va.
Chas. H. Ireland, Odell Hardware Company, Greensboro, N. C.
Bruce Keener, C. M. McClung Company, Knoxville, Tenn.
W. L. Sanford, Roberts, Sanford & Taylor Company, Sherman, Texas.
F. B. Dunlop, Speer Hardware Company, Fort Smith, Ark.
C. B. Carter, secretary-treasurer Southern Hardware Jobbers' Association, Knoxville, Tenn.
C. R. Wright, Wright Bros. Hardware Company, Vicksburg, Miss.
C. G. Wright, Wright Bros. Hardware Company, Vicksburg, Miss.
Jno. M. Graham, Griffin Hardware Company, Rome, Ga.
John Hoen, Henry Keidel & Co., Baltimore, Md.
L. W. New, E. K. Tryon Company, Philadelphia.
B. F. Eshleman, Stauffer, Eshleman & Co., New Orleans.
E. R. Philip, American Can Company, New York.
J. B. Yerkes, Tampa Hardware Company, Jacksonville, Fla.
Guy Mitchell, Beers & Mitchell, Atlanta, Ga.
W. M. Teague, Jr., Teague & Sons, Montgomery, Ala.
W. C. Hollyman, Beck & Gregg Hardware Company, Atlanta, Ga.
K. Dinkins, Dinkins & Davidson, Atlanta, Ga.
Clyde L. King, Atlanta Agricultural Works, Atlanta, Ga.
T. G. Ewing, Ewing Hardware Company, Gadsden, Ala.
E. H. Vordenbaumen, Vordenbaumen & Eastham Company, Shreveport, La.
B. M. Gladding, E. C. Atkins & Co., Indianapolis, Ind.
Perry G. Wall, Knight & Wall Company, Tampa, Fla.
W. W. Webber, Webber-Ayers Hardware Company, Fort Smith, Ark.
J. Hart Weed, Weed & Co., Buffalo, N. Y.
C. B. Hancock, Bluefield Hardware Company, Bluefield, W. Va.
E. R. Burks, Bluefield Hardware Company, Bluefield, W. Va.
J. D. Moore, Moore & Handley Hardware Company, Birmingham, Ala.
W. J. Fickle, Virginia-Tennessee Hardware Company, Bristol, Tenn.
J. D. Mitchell, D. & H. Scovil, Higganum, Conn.
A. H. H. Boyd, Roanoke Hardware Company, Roanoke, Va.
Geo. G. Moore, Nelson Hardware Company, Roanoke, Va.
Frank Guildener, Sargent & Co., New York.
I. S. McNeill, Worthington Hardware Company, Staunton, Va.
Wm. E. Perdew, J. W. Marcheson Company, Wilmington, N. C.
W. D. Stewart, Richmond Hardware Company, Richmond, Va.
R. E. V. Farrar, Richmond Hardware Company, Richmond, Va.
C. P. Bowman, C. P. Bowman & Bro., Staunton, Va.
J. S. Bonbright, Supplee Hardware Company, Philadelphia.
Wm. Alexander, Knight & Wall Company, Havana, Cuba.
J. E. Keyser, Kane-Keyser Hardware Company, Belington, W.Va.
J. W. Williams, Williams & Davison Company, Clarksburg, W.Va.
P. W. F. Courtney, Charleston Hardware Company, Charleston, W. Va.
Sam'l H. Groser, R. K. Carter & Co., New York.
Spencer James, Piedmont Hardware Company, Danville, Va.
W. W. Crandall, W. W. Crandall & Co., Nashville, Tenn.
E. F. Cooper, Henry Disston & Sons, Philadelphia.
Fred. Fox, Fox Bros., Hardware Company, Pine Bluff, Ark.
J. Van Dokkum, Fones Bros. Hardware Company, Little Rock, Ark.
R. D. Carver, Southern Steel Company, Birmingham, Ala.
W. R. Elverson, Asheville Hardware Company, Asheville, N. C.
J. C. Miller, Southern Supply and Machinery Dealers' Association, Huntington, W. Va.
Geo. E. King, King Hardware Company, Atlanta, Ga.
L. W. Stewart, Cincinnati, Ohio.
T. F. Sanford, Mockville, N. C.

A. C. S. RAYMOND has been elected treasurer of the Superior Tap Company, Springfield, Vt., and will couple the duties of that office with those of manager, which he already performed. He succeeds F. H. Brown, who has never had an active part in the management of the business and who now retires. W. H. H. Slack, who was formerly a director of the company, in which he is largely interested, will succeed Mr. Raymond as president. H. K. Parkman continues his duties as vice-president, having charge of the mechanical department.

C. A. MAYDWELL wishes to remind the trade that he is again back in business quarters at 519 Market street, Central Building, San Francisco.

The Hardware Store of Neal & Brinker Company.

TWELFTH ARTICLE.

ADJOINING the Builders' Hardware Department of Neal & Brinker Company, described in the previous article of this series, is a very ingenious and effective display of samples of Bathroom Fixtures, Fig. 71. The samples are attached to a display board made in imitation of a tiled bathroom wall, as shown in the cut. The board is about 8 feet high by 5 feet wide, and is fastened to strips on the side wall of the room. The appearance

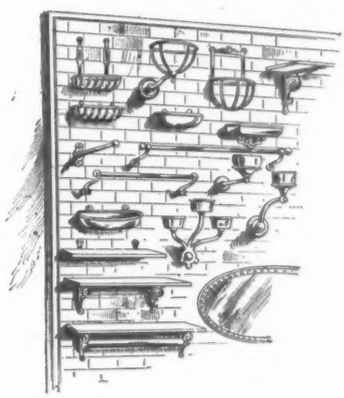


Fig. 71.—Bathroom Fixtures on Sample Board Imitating Tiled Wall.

of tiling was securing by covering the board with tin, which was given a good coat of white enamel paint and lined to represent the tiles. The appearance of the bright Nickel Brackets, Shelves, Soap Dishes, &c., is effective enough to fully convince a man that these are the kind of fixtures he wants in his bathroom. They are attached to the board with screws as in actual use, holes being easily punched in the tin to admit them.

A good method of accommodating Transom Lifts, is shown in Fig. 72. These articles look tangled up and untidy when lying in a heap on a floor or shelf, or when stacked in a corner, and it is difficult to pick out the sizes. The method used here is to collect different sizes one above the other on racks formed by setting rows of harness hooks at intervals along the wall, two hooks being used for shorter lengths

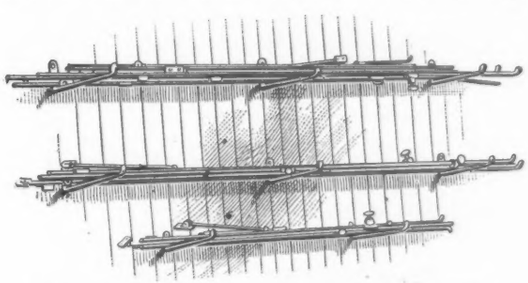


Fig. 72.—Method of Accommodating Transom Lifts.

and three for the longer ones. Taken care of in this manner the Lifts are entirely out of the way, but are easy to get at and present an orderly appearance.

Chain is conveniently accommodated, as illustrated in Fig. 73. For Sash Chain, &c., a rack is built consisting of two boards, the edges of which are against the wall, with holes bored at intervals on both sides, in which to set large spools or reels on which the Chain is wound. Each spool, of course, holds a different size or kind of Chain. Trace and Halter Chains, Triumph, Straight Link, German Machine and Coil Chain, are hung on harness hooks, fastened to the wall, where they are convenient to show or get out, when wanted.

Fig. 74 illustrates the method of accommodating Gear and Milling Cutters, Slitting Saws and Metal Circular Saws. They are kept on boards perhaps 3 feet long and half as wide and covered with black cloth, which effectively sets off the tools. Some may think it a waste of time to devote so much attention to articles of this character, but it is unquestionable that customers appre-

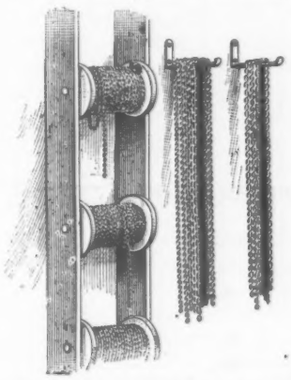


Fig. 73.—Reels of Sash Chain and Coil Chain, &c., on Hooks.

ciate such excellent opportunities for selection and comparison, and get a far more favorable idea of a store

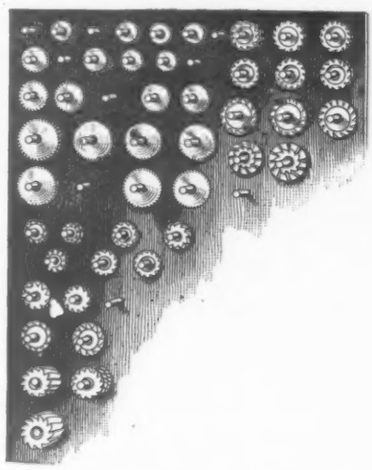


Fig. 74.—Stock of Metal Circular Saws, Slitting Saws and Gear Cutters.

where stock is handled and displayed in such a painstaking and workmanlike way. It is this sort of thing that

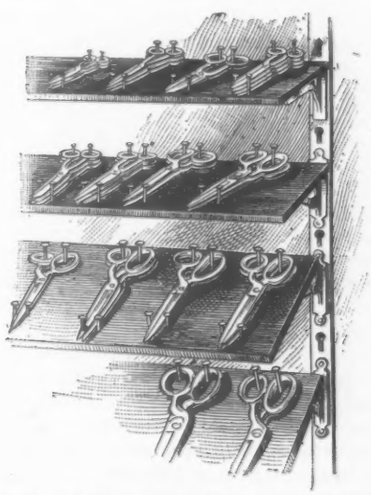


Fig. 75.—Display of Shears and Scissors on Adjustable Shelves in Showcase.

differentiates between up to date merchandising and merely keeping store. The Saws and Cutters hang on ¾-inch dowel sticks set in the boards at intervals regu-

lated by the size of the tools and cut to a uniform length of 6 inches.

In the showcases located in the front and center of the store, as indicated by the diagram of the first floor published in a previous article, many different lines of goods are kept on adjustable shelves. Among these may be mentioned Table Cutlery, Carving Sets, Pocket Cutlery, Planes, Stock and Die Sets, Pliers and Nippers, &c. Fig. 75 shows the method of keeping Scissors and Shears. They lie in the showcases just referred to on adjustable shelves which incline downward so that the view of one shelf is not entirely obstructed by the one above it. The goods are held in place by pegs through their bows and set on either side of their blades to keep them straight.

THE NORTON COMPANY.

THE NORTON EMERY WHEEL COMPANY, Worcester, Mass., manufacturer of Abrasive Wheels, has changed its corporate name and will be known henceforth as the Norton Company. The reason for the change is the fact that as the company has practically abandoned the use of emery and all other abrasive materials with the exception of the artificial product, alundum, the old name has become misleading. It is believed by the officers of the Norton Company that the dropping of these words from the corporation name will cause little confusion on the part of the public, as Norton Grinding Wheels and Norton Company have been familiarly referred to in this way many years.

Alundum is an artificial abrasive made in electric furnaces by the Norton Company at Niagara Falls, N. Y. The company, in its constant aim to develop the most efficient Grinding Wheels and materials, has, during the last few years, been operating an electric furnace plant at Niagara Falls. Here has been brought to a high state of development the manufacture of alundum. The Niagara Falls plant has been doubled during the last year to supply the Worcester works exclusively.

Very little has been published in regard to the process of making alundum. This process consists in taking the purest amorphous oxide of aluminum found in nature, known as the mineral bauxite, purifying it and melting it in the electric furnace in a large, homogeneous uniform bath. Upon cooling, it is stated, this molten fluid solidifies and crystalizes in solid masses of alundum of great purity and absolute uniformity throughout, and of a hardness greater than any known substance except the diamond. Bauxite, the raw material from which alundum is made, was discovered at Baux, France, from which it derives its name, but purer forms are now attainable in the United States. The highest quality only is used in the manufacture of alundum. This ore also is the chief source of the metal aluminum. The temperature at which the furnace charge melts into one uniform, homogeneous liquid mass is above the limit at which temperatures are measured by any means known to science, and is variously estimated at between 6000 and 7000 degrees Fahrenheit.

The Norton Company was one of the first to engage in the manufacture of vitrified wheels, and it is now generally recognized that the grinding wheels produced by this process are highly successful. In the vitrified process the abrasive materials are mixed with various clays and other substances, and, after being formed, are placed in kilns or ovens and subjected to high temperatures; in some cases nearly 3000 degrees Fahrenheit. It is only the best and purest abrasive which will stand this severe heat successfully, and it has been found that there is no abrasive material which works to better advantage under these conditions than alundum. The process of manufacturing alundum is patented both in the United States and abroad. It was awarded the grand prize at the St. Louis Exposition and is recognized as one of the most important developments in electro-chemistry.

WILLIAMSPORT RADIATOR COMPANY, Williamsport, Pa., announces that Z. A. Craig, formerly of the Craig-Reynolds Foundry Company, Dayton, Ohio, has become general manager of the company. He will have entire supervision of the manufacture of its Boilers and Radiators for steam and hot water heating.

CEMENT COATED NAILS TRADEMARK.

THE J. C. PEARSON COMPANY, Boston, Mass., manufacturer of Cement Coated Nails, has received notice from Washington that its application for a trademark of the words "Cement Coated Nails" has been granted by the Government. It is stated that under this trademark the company is given the exclusive right to use the words Cement Coated Nails, which have been used by the company and its predecessors since 1887. The Cement Coated Nail has become an important accessory in the manufacture of wooden boxes, in the putting together of crates by shippers, in construction work and for many other uses where great holding power is required or is desirable. The coating of the wire nails gives great adhesive power. The company manufactures the nail in a full list of sizes, and Coated Nails are furnished with all such special features as can be made in wire.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our catalogue department in New York; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

THE DELPHOS CAN COMPANY, Delphos, Ohio: Illustrated catalogue of Pump, Faucet and Spout Oil Cans, Gasoline Cans, Factory and Druggists' Dispensers, Oily Waste Cans, Oil Tanks, Lanterns, Rotary Corn Poppers, Long Handle Dust Pans, Resetting Rat Traps, &c.

DETROIT WIRE & IRON WORKS, 1259-1265 Military avenue, Detroit, Mich.: 1906 spring supplement No. 24, illustrating Sand Screens, Ornamental Gates, Riddles, Muzzles, Wire Grave Guards, Fencing, Wire Arches and Trellises, Lawn Furniture, Window Guards, Bank and Counter Railing, French Mouse and Rat Traps, &c.

GLASCOCK BROS. MFG. COMPANY, Muncie, Ind.: Catalogues relating to Baby Tenders and Walkers, Mission Swinging Settees and Chairs, Racers or Hand Cars for Children, &c.

HAWKEYE PUMP COMPANY, Washington, Iowa: Circular relating to Gasoline Tanks, Stock Tanks, Galvanized Floats, Storage Tanks, Troughs, Garbage and Ash Cans, &c.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Catalogue descriptive of the Stevens Rifle Telescopes.

INDIANA BENT RUNG LADDER COMPANY, Indiana, Pa.: Catalogue illustrating Bent Rung Single, Extension, Sectional and Step Ladders.

MISCELLANEOUS NOTES.

Dixon's Graphite Pipe Joint Compound.

Joseph Dixon Crucible Company, Jersey City, N. J., and 68 Reade street, New York, is making a graphite mixture to be used when setting up joints and unions for steam pipes so as to insure leak proof joints and yet enable a workman to disconnect the pipes quickly and easily without loss of time or material. It is known as Dixon's Graphite Pipe Joint Compound No. 695 and is recommended by the company for use in connection with steam and gas pipes, flanges and gaskets, as well as for bolts, screws, &c., in the same way that red lead is often used. Some of the advantages of this compound enumerated by the company are that it fills up all chinks and keeps joints tight indefinitely but never sets, resists corrosion and is unaffected by heat, cold, acids or alkalies and will cover over double the surface covered by an equal weight of red lead mixed.

Glascock Bros. Mfg. Company.

Glascock Bros. Mfg. Company, Muncie, Ind., states that its combined baby walker and tender has been found efficacious in the cure of spinal trouble in children, through the exercise obtained by its use. The article is now being made for the use of children from 6 months to 11 or 12 years old. The company's baby jumper is also being made larger, so that it will answer better for a jumper, bed, rocking chair and high chair. A go-cart attachment to the jumper has been added, which makes a large roomy, adjustable go-cart.

Asbestos Protected Metal.

The Asbestos Protected Metal Company, Canton, Mass., is manufacturing a new product designed for use as roofing, siding and ceiling. It is composed of a body of annealed sheet steel, which is immersed at a very high temperature in a bath of cement compound of special formula. This compound is the result of eight years' continuous experiment on the part of a roofing expert and possesses unique preservative qualities. The intense heat of the sheet during the immersion tends to open the pores of the metal and allows a penetration of the compound. After this immersion takes place the sheet of steel is passed through a pair of steam heated dripping rolls, which removes the surplus compound and renders the coating even and clear. Pure asbestos felt is then applied to both sides of it under great pressure and each sheet is afterward cooled slowly in a press, gradually contracting and hardening until its different component parts are united into a practically solid mass. The result is a material which it will be clearly seen can resist fire, water, gas, sulphur fumes and the ravages of the elements for an indefinite period. Asbestos protected metal possesses the strength, rigidity and lightness of iron roofing combined with the portability and ease of application of the most satisfactory ready prepared roofing. The manufacturer states that the means employed in constructing the material make it next to impossible to separate the asbestos from the steel by the most vigorous scraping. When used for roofing or siding the liability to condensation on the inner surface, which is the most vulnerable point of an ordinary metal roof, is completely eliminated. It is produced in flat sheets 30 inches wide by 96 inches long and 30 inches wide by 120 inches long, and in corrugated sheets 27½ inches wide by 96 inches long and 27½ inches wide by 120 inches long. It is sold by the square of 108 square feet and packed ready for shipment in crates with nails, cement and full instructions for applying. The flat sheets may be lapped or fastened with nails and cement in the manner in which an ordinary prepared roofing is applied, or they may also be laid with standing seam or self locking seams, as in the manner of regular iron roofing. Two qualities are made—namely, Aspromet and Duckback brands.

The Martin Skate Company.

The Martin Skate Company, Old South Building, Boston, Mass., is putting on the market a line of waterproof wallets, designed for carrying the company's folding pocket skates. Each wallet carries a pair of skates, one in each pocket, to prevent scratching. The compact form makes it easy to carry the skates in the breast pocket or in a muff. The wallet is manufactured in six sizes and in four styles of each, as follows: Black Chase pigskin, cloth lined; tan color Chase pigskin, extra heavy, with double cloth lining; dark green Chase seal grain, extra heavy, with double cloth lining, and in black leather. Wallets for racing skates are made only in the two largest sizes, and in the last three styles named. The company has improved its folding pocket skates by adopting a reinforced clamp, which greatly increases the strength of both heel and toe clamps.

Yankee All Steel Dampers and Clips.

The S. M. Howes Company, 40-46 Union street, Boston, Mass., manufacturer of the Yankee all steel dampers and clips, announces that the handles of both dampers and clips are now tinned instead of nickeled or japanned, as formerly. The new finish prevents rust and keeps the handles looking bright all the time. The dampers are made for both hot air and smoke, and the smoke pipe dampers are made both round and oval.

Automatic Sash Holder.

The Automatic Sash Holder Company, 277 Broadway, New York, has just placed on the market the automatic sash holder here shown. It is designed to automatically hold in any position required both upper and lower window sash, without using sash cord, weights or pulleys. The idea grew out of the necessities of portable house construction, where large window frames with weight pockets were impossible and superfluous material was discarded, the above company being practically identical with the Ducker Company, at same address, which manufactures portable houses of all kinds. The principle of this holder has been thoroughly tried out for several years in portable house construction, and now, greatly improved in every detail to satisfy more exacting conditions, is offered for permanent structures. The body of the holder requires only an easily made mortise in the stile of sash, about 3¼ x ⅞ x 1 5-16 inches, all of which can

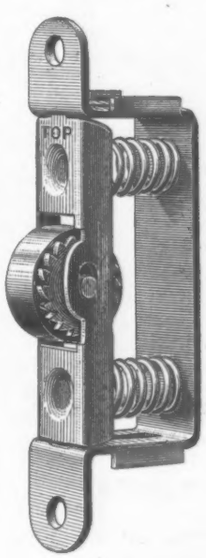


Fig. 1.—Automatic Sash Holder, Nearly Two-Thirds Size.

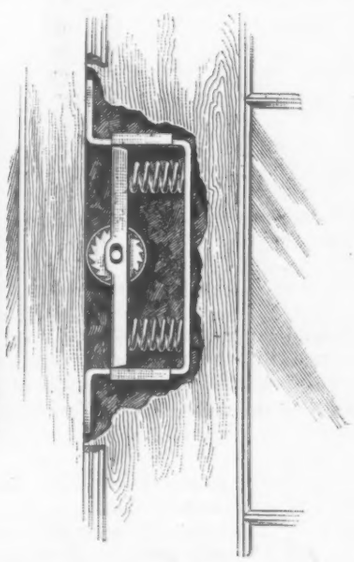


Fig. 2.—Holder in Position, With Part of Stile Cut Away.

be done with a ⅞-inch auger bit and chisel, mortises for new work being machine mortised at the mill. When in position the wheel runs up and down on the jamb of window frame and the holder is absolutely out of sight. The two portions of the frame are formed by special machinery from 5-64 inch sheet steel. A binding or holding friction pressure is obtained by means of two electro galvanized piano wire steel springs, which are 9-16-inch diameter and held securely in place by large bosses stamped top and bottom in both plates. The wheel pinions, it will be seen, revolve in two elongated or oval holes with a play of about 3-32 inch, so that as the sash is raised the wheel revolves, but when lifting ceases the wheel axles move upward in the slot, and the ratchets engage with each side of the upper plate sufficiently to hold the sash at any desired point. The company emphasizes some of the following advantages, viz.: that hardwaremen and others can buy them in sets of four, so as to retail profitably for less than the cost of weights, cords and pulleys; that while equally suitable for old or new construction, in the latter case there can be a great saving, both in material and freight, as well as bulk, by having window frames made without weight pockets; that owing to constant side pressure, windows, regardless of swellings or shrinkings, will always fit snugly and thus not rattle. For the average window a holder on each side of each sash up to 20 pounds will answer

every purpose, they being especially suitable for residences in town or country, apartment houses, factories, cottages or any of the innumerable structures requiring windows. The holders, it may be said, have been successfully used on sash as heavy as 35 pounds each, the only objection to using them on very heavy sash being the greater strength needed to raise and lower the sash. For sash weighing 8 pounds each or less one holder on a sash is sufficient, thereby reducing the cost one-half, and for sash heavier than the average four holders could be used on each sash instead of two, if necessary.

Adjustable Emery Wheel Dresser.

Patterson, Gottfried & Hunter, 146-150 Centre street, New York, are introducing the adjustable emery wheel dresser here illustrated. It is a tool intended for use on the rest in front of an emery wheel and to be moved back and forth on the face of it. In this way the high spots can readily be taken off, and at the same time straighten the face of the wheel. A

Fig. 1.—Adjustable Tap Wrench.

great advantage possessed by this tool is that the individual operating the machine stands at one side instead of in front of the wheel, thus avoiding injury from flying emery or from the wheel if it should break. The tool is

Fig. 2.—Adjustable Emery Wheel Dresser.

adjustable to any sized rest, and it takes the ordinary emery cutter, so that the original one may be replaced when worn out.

The Evans Crescent Expansion Bolt.

F. H. Evans, 596-614 Kent avenue, Brooklyn, N. Y., is putting on the market the double end grip expansion bolt shown in the accompanying cuts. A peculiarity of this two-part bolt is that it expands at both ends, while the pliable metal binds and grips, or secures itself, into the sides of the hole. The lower piece, or one furthest from the head of the bolt, is tapped out to take the thread of the bolt. The upper piece is loose, and of just the proper size for the bolt to go through without friction. It is pointed out that there is no difficulty experienced in drawing work down closely with the bolts, and that it is only necessary to put the fittings in the hole, in the usual manner, the nut piece being put in first, and then with a setting tool or piece of round iron or pipe and a hammer giving a sharp blow on the upper or loose jaw, driving it down hard on the lower or nut piece. This will open out the interlocking fingers on both pieces, causing them to grip or pinch at both ends and on all sides of the hole, as shown in Fig. 1. The piece to be fastened is then placed in position and the bolt put in and screwed down hard. The work to be fastened will then be drawn down closely against the stone or brick. The interlocking fingers of the two pieces so engage each other that the bolt, when inserted, must take the thread on the first trial, and when it is screwed in hard the expanding fingers grip the hole at so many points that it is impossible to rock, shake

Fig. 1.—Driving Down the Parts of Crescent Expansion Bolts Before Inserting the Bolt.

or twist them out of position, as they practically bind on the entire circumference of the hole. All that is required is a hole of sufficient size and depth to insert the bolt with nut and loose jaw, when by turning the head, as with a lag screw or common wood screw, the nut piece is drawn toward the head of the bolt. This causes the interlocking fingers to be drawn together and outward over the beveled spaces on both the nut end and the free end. Any strain on the bolt only tends to further expand the

Fig. 2.—Parts Ready to Be Screwed Down.

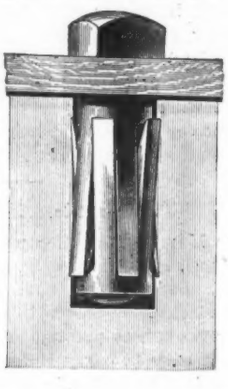


Fig. 3.—Expansion in Place and Gripping Sides of Hole.

jaws, so that the greater the tension the firmer the bolt will hold. A feature of the bolts is that they can be removed as easily as they are applied and without injury either to the articles fastened, or the bolts themselves. They are designed for use whenever it is not practicable or desirable to drill or bore through the material to which the fastenings are to be made, such as in bridge work, engine beds on masonry or solid rock, electrical work, iron window and door frames, railings, fire escapes, &c. Illustrated catalogues and samples screwed into blocks of wood or stone will be furnished by the manufacturer on application.

Stevens Double Barrel Hammerless Shotgun.

J. Stevens Arms & Tool Company, Chicopee Falls, Mass., is putting on the market the gun shown herewith. choke bored for nitro powder. The gun has extension matted rib with the company's reinforced breech; oiled walnut stock with pistol grip checked, and patent snap forearm checked. The regular length of the stock is 14 inches, with 2¾-inch drop. The gun can be supplied in 12

Stevens Double Barrel Hammerless Shotgun No. 325.

The action is of the Anson & Deeley type, with the Stevens check hook, relieving the forearm of strain. The barrels are of especially prepared high pressure steel, gauge, with 28, 30 and 32 inch barrels, and in 16 gauge with 28 and 30 inch barrels only. The weight of the gun is from 7¼ to 8½ pounds.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	₰ gal	
Linseed, City, raw		@40
City, Boiled		@41
State and Western, raw		@38
Raw Calcutta Seed		@..
Lard, Extra Prime, Winter		@72
Extra No. 1		@65
No. 1		@44
Cotton-seed, Crude, f.o.b. mills		@27
Summer Yellow, Prime		@36½
Summer Yellow, off grades		@36½
Sperm, Crude		@..
Natural Spring		@..
Bleached Spring		@..
Natural Winter		@65
Bleached Winter		@67
Bleached Winter, Extra		@69
Tallow, Prime		@63
Whale, Crude		@33
Natural Winter		@44
Bleached Winter		@46
Extra Bleached Winter		@50
Menhaden, Brown, Strained		@29
Light, Strained		@30
Bleached, Winter		@..
Extra Bleached, Winter		@..
Southern		@..
Cocoanut, Ceylon	₰ lb	6¾@ 7
Cochin	₰ lb	8@..
Cod, Domestic, Prime		@33
Newfoundland		@37
Red, Elaine		@40
Red, Saponified	₰ lb	4¾@ 5
Olive, Italian, bbls		@60
Neatsfoot, prime		@49
Palm, Logos	₰ lb	6 @ 6½

Mineral Oils—

Black, 29 gravity, 25@30 cold	₰ gal.	
test		10¼@11½
29 gravity, 15 cold test		11½@12½
Summer		10¼@11½
Cylinder, light filtered		@19
Dark filtered		@17
Paraffine, 903-907 gravity		13¼@14
903 gravity		12½@13
883 gravity		10¼@10¾
Red		12½@14

In small lots ½¢ advance.

Miscellaneous—

Barytes:		
White, Foreign	₰ ton	$17.50@19.00
Amer. floated	₰ ton	19.00@.....
Off color, No. 2	₰ ton	13.50@15.00
Chalk, in bulk	₰ ton	3.00@ 3.25
In bbls	₰ 100 lb	....@ .35
China Clay, English	₰ ton	11.00@17.00
Cobalt, Oxide	₰ 100 lb	2.50@ 2.60
Whiting, Common	₰ 100 lb	.43@ .48
Gilders	₰ 100 lb	.50@ .55
Ex. Gilders	₰ 100 lb	.55@ .60

Putty, Commercial—₰ 100 lb

In bladders	$1.70	@1.85
In bbls. or tubs	1.20	@1.40
In 1 lb to 5 lb cans	2.65	@2.95
In 12½ to 50 lb cans	1.50	@1.90

Spirits Turpentine—₰ gal.

In Oil bbls	.61 @61½
In machine bbls	.61½@62

Glue—

	₰ lb	
Cabinet		@15
Common Bone		@ 9
Extra White		@24
Foot Stock, White		@14
Foot Stock, Brown		@11
German Hide		@18
French		@40
Irish		@16
Low Grade		@12
Medium White		@17

Gum Shellac—

	₰ lb	
Bleached Commercial		@42½
Bone Dried		@52
Button		@50
Diamond I.		@55
Fine Orange		@50
A. C. Garnet		@44½
D. C.		@60
Octagon B.		@52
T. N.		46
V. S. O.		@55

Colors in Oil—

	₰ lb	
Black, Lampblack		@14
Blue, Chinese		@46
Blue, Prussian		@36
Blue, Ultramarine		@16
Brown, Vandyke		@14
Green, Chrome		@16
Green, Paris		@24
Sienna, Raw		@15
Sienna, Burnt		@15
Umber, Raw		@14
Umber, Burnt		@14

White Lead, Zinc, &c.—

	₰ lb	
Lead, English white, in Oil		9½@ 9¾
Lead, American white, in Oil:		
Lots of 500 lb or over		@ 7¼
Lots less than 500 lb		@ 7¾
In Barrels		@ 6¾
Lead, White, in oil, 25 lb tin pails, add to keg price		@ ⅛
Lead, White, in oil, 12½ lb tin pails, add to keg price		@ 1
Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price		@ 1½

Lead, American. Terms: For lots 12 tons and over ¼¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.

	₰ lb	
Lead, White, Dry, in bbls		@ 6¾
Zinc, American, dry		4¾@ 5
Zinc, French:		
Antwerp, Red Seal, dry		8¾
Antwerp, Green Seal, dry		10½
Paris, Red Seal, dry		9¼
Paris, Green Seal, dry		10½
Zinc, V. M. French, in Poppy Oil:		
Green Seal:		
Lots of 1 ton and over		12¾@13¼
Lots of less than 1 ton		12¾@13⅜
Zinc, V. M. French, in Poppy Oil:		
Red Seal:		
Lots of 1 ton and over		11¾@11⅞
Lots of less than 1 ton		11¾@12⅛

Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors—

	₰ lb	
Black, Carbon	5	@10
Black Drop, American	4	@ 6
Black Drop, English	5	@15
Black, Ivory		16 @20
Lamp, Com		4½@ 6
Blue, Celestial		4 @ 6
Blue, Chinese		29 @32
Blue, Prussian		27 @30
Blue, Ultramarine		4½@15
Brown, Spanish		½@ 1
Carmine, No. 40		$3.10@3.20
Green, Chrome, ordinary		3½@ 6
Green, Chrome, pure		17 @25

Lead, Red, bbls., ½ bbls. and kegs:

Lots 500 lb or over		@ 7¼
Lots less than 500 lb		@ 7¾
Litharge, American, bbls		@ 7¼
Ocher, American	₰ ton	$8.50@16.00
American Golden		2½@ 3½
French		1¼@ 2½
Foreign Golden		3 @ 4
Orange Mineral, English		10 @12
French		10¾@12
German		8½@10
American		8½@ 9¾
Red, Indian, English		4½@ 8½
American		3 @ 3¾
Red, Turkey, English		4 @10
Red, Tuscan, English		7 @10
Red, Venetian, Amer.	₰ 100 lb	$0.50@1.25
English	100 lb	$1.15@1.75
Sienna, Italian, Burnt and Powdered		3 @ 9¾
Italian, Raw, Powdered		3 @ 6¾
American, Raw		1½@ 2
American Burnt and Pow		1½@ 2
Talc, French	₰ ton	$15.00@30.00
American	₰ ton	15.00@25.00
Terra Alba, French	₰ 100 lb	90 @1.00
English	₰ 100 lb	80 @1.00
American	₰ 100 lb, No. 1,	75 @80
American	₰ 100 lb, No. 2,	60 @65
Umber, Turkey, Bnt. & Pow		2½@ 3¾
Turkey, Raw and Powdered		2½@ 3½
Burnt, American		1½@ 2
Raw, American		1½@ 2
Yellow Chrome		12 @14
Vermillion, American Lead		10 @25
Quicksilver, bulk		65 @70
Quicksilver, bars		@61
English, Import		.65 @70
Chinese		$0.90@1.00

THE IRON AGE

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

ISSUED EVERY THURSDAY MORNING.

Subscription, postpaid, $5.00 a year

TWO DOLLAR EDITION, $2.00 a year; DOLLAR EDITION, $1.00 a year, to the United States, British America Mexico, Hawaii, Cuba, Philippine Islands. OTHER COUNTRIES: Weekly Edition, $7.50; Semi-monthly Edition, $4.00; Monthly Edition, $2.50.

ADVERTISING RATES ON APPLICATION.

New York (Main Office),	14-16 Park Place,	DAVID WILLIAMS CO., Pub'
Philadelphia,	Real Estate Trust Co. Bldg., Broad and Chestnut Sts.,	S. S. RECKEFUS, Manager.
Pittsburgh,	Park Building, 357 Fifth Avenue.	ROBERT A. WALKER, Manager.
Chicago,	Fisher Building, Dearborn and Van Buren Streets,	A. A. AINSWORTH, Manager.
Cincinnati,	Pickering Building, Fifth and Main Streets,	HENRY SMITH, Manager.
Boston,	Compton Building, 161 Devonshire Street,	WALTER C. ENGLISH, Manager.
Cleveland	The Cuyahoga, 311 Superior Street	EZRA S. ADAMS, Manager.

Remittances should be made by Draft, payable to the order of DAVID WILLIAMS COMPANY, on any banking house in the United States or Europe, or by Post Office, Bank or Express Money Order on New York. When those cannot be obtained, postage stamps of any country will be received.

Newsdealers or Booksellers in any part of the world may obtain *The Iron Age* through the American News Company, New York, U. S. A. The International News Company, New York, U. S. A., and London, England; or the San Francisco News Company, San Francisco, Cal., U. S. A.

ENTERED AT THE POST OFFICE, NEW YORK, AS SECOND-CLASS MATTER

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1905, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Domestic, ₩ doz. $3.00.....33⅓%
North's 10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition— See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Eagle Anvils.....₩ lb 6¾@7 ¢
Hay-Budden, Wrought.....9@9¼ ¢
Horseshoe brand, Wrought.....9@9¼ ¢
Trenton .....₩ lb 9@9¼ ¢

Imported—

Peter Wright & Sons.....₩ lb 10¼ ¢

Anvil, Vise and Drill—

Millers Falls Co., $18.00.....15&10%

Apple Parers— See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Livingston Nail Co.....33⅓%

Augers and Bits—

Com. Double Spur.....75@75&5%
Jennings' Patn., reg. finish.....50&10@60%
Black Lip or Blued.....60&10%
Boring Mach. Augers.....70&10%
Car Bits, 12-in. twist.....50&10%
Ford's Auger and Car Bits.....40&5%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip, R. Jennings' list..25%
No. 30, R. Jennings' list.....40&7½%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits.....15
Mayhew's Countersink Bits.....45%
Millers Falls.....50&10&7½%
Ohio Tool Co.'s Bailey Auger and Car Bits.....40&10%
Pugh's Black.....30%
Pugh's Jennings' Pattern.....30%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist....60&10%
Wright's Jennings' Bits.....50%

Bit Stock Drills—

See *Drills, Twist.*

Expansive Bits—

Clark's small, $18; large, $26....50&10%
Clark's Pattern, No. 1, ₩ doz. $26; No. 2, $18.....65%
Ford's, Clark's Pattern.....60&5%
C. E. Jennings & Co., Steer's Pat..25%
Swan's 60%

Gimlet Bits—

Per gro.
Common Dble. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.60; 11 to 13, $5.75

Hollow Augers—

Bonney Pat., per doz..$5.50@6.00
Ames .....25&10%
Universal 20%
Wood's Universal.....25%

Ship Augers and Bits—

Ship Augers.....45&5@—%
Ford's .....33⅓&5%
C. E. Jennings & Co.:
L'Hommedieu's 15%
Watrous' .....35&5%
Ohio Tool Co.'s.....40%
Snell's 40%

Awl Hafts—See *Handles, Mechanics' Tool.*

Awls—

Brad Awls:
Handled .....gro. $2.75@3.00
Unhdled, Shldered...gro.63@66 ¢
Unhandled, Patent..gro.66@70 ¢
Peg Awls:
Unhandled, Patent..gro. $1@3¼ ¢
Unhdled, Shldered..gro. 65@70 ¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Socket..gro.$11.50@12.00
Hurwood 40%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

Single Bit, base weights:
First Quality.....$4.75@5.00
Second Quality.....$3.25@4.50
Double Bit, base weights:
First Quality.....$7.00@7.50
Second Quality.....$6.50@6.75

Axle Grease— See *Grease, Axle*

Axles— Iron or Steel

Concord, Loose Collar...4¼@4¾ ¢
Concord, Solid Collar...4¾@5¼ ¢
No. 1 Common, Loose...5¼@5¾ ¢
No. 1½ Com., New Style 5¾@6¼ ¢
No. 2 Solid Collar.....4@4½ ¢
Half Patent:
Nos. 7, 8, 11 and 12....75@75&5%
Nos. 13 to 14.....70&10@75&5%
Nos. 15 to 18...75&10@75&10&5%
Nos. 19 to 22...75&10@75&10&5%

Boxes, Axle—

Common and Concord, not turned lb..4½@5 ¢
Common and Concord, turned. lb., 5½@6 ¢
Half Patent.....lb. 8½@9 ¢

Bait— Fishing—

Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20&5%

Balances— Sash—

Caldwell new list.....50%
Pullman .....30&10@60%

Spring—

Spring Balances.....50&10@60%
Chatillon's:
Light Spg. Balances.....50&10%
Straight Balances.....40@50%
Circular Balances.....50&10%
Large Dial.....30%

Barb Wire—See *Wire, Barb.*

Bars— Crow—

Steel Crowbars, 10 to 40 lb.... per lb., 3¼ ¢

Towel -

No. 10 Ideal, Nickel Plate..₩ gro. $3.50

Beams, Scale—

Scale Beams.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters, Carpet—

Holt-Lyon Co.:
No. 12 Wire Coppered ₩ doz. $0.85; Tinned $1.00
No. 11 Wire Coppered ₩ doz. $1.10; Tinned $1.20
No. 10 Wire Galvanized..₩ doz. $1.75
Western W. G. Co.:
No. 1 Electric.....₩ gro. $7.80
No. 2 Buffalo.....₩ gro. $9.00
No. 3 Perfection Dust.....₩ gro. $8.00

Egg-

Holt-Lyon Co.:
Holt, per doz., No. 1, Jap'd, $1.20; No. 1, Tin'd, $1.50; No. 1, Jap'd, $2.00; No. 2, Tin'd, $2.25.
Lyon, Jap'd, per doz., No. 2, $1.25; No. 3, $1.50.
Taplin Mfg. Co.:
Improved Dover, per gro., No. 60, $6.00; No. 75, $6.50; No. 100, $7.00; No. 102, Tin'd, $8.50; No. 150, Hotel, $15.00; No. 152, Hotel Tin'd, $17.00; No. 200, Tumbler, $8.50; No. 202, Tumbler Tin'd, $9.50; No. 300, Mammoth, per doz., $25.00.
Turner & Seymour Mfg. Co.:
T. & S. Dover.....$6.00
Western, W. G. Co., Buffalo.....$7.00
Wonder (R. M. Co.)..₩ gro. net, $6.00

Bellows—

Blacksmith, Standard List.. 60&10@70&10%

Hand—

Inch..	*6*	*7*	*8*	*9*	*10*
Doz..	*$4.75*	*5.70*	*6.65*	*7.60*	*8.85*

Molders—

Inch..	*9*	*10*	*11*	*12*	*14*
Doz..	*$8.00*	*9.00*	*10.50*	*12.50*	*14.50*

Net Prices

Bells— Cow—

Ordinary goods...75&5@75&10&5%
High grade.....70&10@70&10&5%
Jersey .....75&10%
Texas Star.....50%

Door—

Abbe's Gong.....45%
Burton Gong.....50%
Home, R. & E. Mfg. Co.'s.....55&10%
Trip Gong.....50&10@50&10&5%
Yankee Gong.....55%

Hand—

Hand Bells, Polished, Brass.60&10%
White Metal.....60%
Nickel Plated.....50&10&60%
Swiss .....60@60&7½%
Cone's Globe Hand Bells.....33⅓@35%
Silver Chime.....33⅓@35%

Miscellaneous—

Farm Bells.....lb. 2½ ¢
Steel Alloy Church and School 50&10@60%
American Tube & Stamping Co. Gongs 75%
Table Call Bells.....50@50&10%

Belting— Leather—

Extra Heavy, Short Lap..60&5%
Regular Short Lap....60&10&5%
Standard 70%
Light Standard.....70&5%
Cut Leather Lacing.....50%
Leather Lacing Sides, per sq. ft. 25¢

Rubber—

Agricultural (Low Grade).... 75@75&5%
Common Standard....70@70&10%
Standard .....60&5@60&10%
Extra .....60@60&5%
High Grade.....50&5@50&10%

Bench Stops—

See *Stops, Bench*

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender.....40%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.
Green River Tire Benders and Upsetters 20%

Bicycle Goods—

John S. Leng's Son's 1906 list:
Chain, Parts, Spokes.....50%
Tubes 60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks— Tackle—

Common Wooden....70&10@75%
Hartz St. Tackle Blocks.....50@50&5%
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron....50&10%
Stowell's Self Loading.....60%
See also Machines, Hoisting.

Boards, Stove—

Zinc, Crystal, &c.....40%
Paper Embossed.....40&10%

Boards, Wash—

See *Washboards.*

Bobs, Plumb—

Keuffel & Esser Co.....33⅓%

Bolts—

Carriage, Machine, &c.—

Common Carriage (cut thread): ⅝ x 6 and smaller.....75@—%
Larger and Longer..65&5@—%
Phila. Eagle, $3.00 list May 24, '99 80%
Bolt Ends, list Feb. 14, '95.... 65&10@—%
Machine, ⅜ x 4 and smaller 75@—%
Machine, larger and longer.. 65&5@—%

Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz.	*$0.30*	*.35*	*.45*	*.60*	*.80*

Cast Iron Spring Foot, Jap'd:

Inch.....	*6*	*8*	*10*
Per doz.....	*$1.20*	*1.50*	*2.25*

Cast Iron Chain, Flat, Japanned:

Inch.....	*6*	*8*	*10*
Per doz.....	*$1.00*	*1.40*	*1.65*

Cast Iron Flat Shutter, Jap'd., Brass Knobs:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.75*	*.95*	*1.25*

Wrought Barrel Japd..80@80&10%
Barrel Bronzed.....50@50&10%
Spring .....70&10@70&10&10%
Shutter .....50&5@50&10&5%
Square Neck.....75@75&10%
Square ...66⅔&10@66⅔&10&10%
Ives' Patent Door.....60%

Plow and Stove—

Plow .....65&10@—%
Stove .....87½&10@—%

Tire—

Norway Iron.....80%
Norway Iron.....80%
American Screw Company:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Bay State, list Dec. 28, '99.....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Eclipse, list Dec. 28, '99.....80%
Mount Carmel Bolt Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Mount Carmel, list Dec. 28, '99...80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99.....80%
Norway Phila., list Oct., '84.....80%
Upson Nut Co.:
Tire Bolts.....72½%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch.....	*1¼*	*1½*	*1¾*	*2*
Per doz...	*$4.80*	*5.60*	*6.40*	*8.00*
Inch	*2¼*	*2½*		
Per doz.....	*$8.65*	*11.50*		

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65@$1.75; No. 3, $2.50 each...25%

Boxes, Mitre—

C. E. Jennings & Co.....30%
Langdon .....15&10%
Perfection 40%
Seavey 33⅓%
Stanley R. & L. Co.: Nos. 240 to 460, 30%; Nos. 50 and 60.....35%

Braces—

Common Ball, American..$1.25@1.30
Barber's .....50&10&10@60&10%
Fray's Genuine Spofford's.....60%
Fray's No. 70 to 120, 81 to 123, 207 to 414 .....60%
C. E. Jennings & Co.....50&5%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Pat...50%
Millers Falls Drill Braces.....25&10%
P., S. & W. Co., Peck's Pat.60@60&5%
Stanley R. & L. Co.:
Stanley, 35%; Victor.....45%

Brackets—

Wrought Steel...80&10@80&10&5%
Griffin's Pressed Steel.....80@80&10%
Griffin's Folding Brackets.....70&10%
Stowell's Cast Shelf, 75%; Sink...50%
Western, W. G. Co., Wire.....60&10%

Bright Wire Goods—

See *Wire and Wire Goods.*

Broilers—

Kilbourne Mfg. Co.....75&20%
Western, W. G. Co.....80%
Wire Goods Co.....75@75&10%

Buckets, Galvanized—

Price per dozen.

	Quart.....	*19*	*12*	*14*
Water, Regular		*1.40*	*1.70*	*1 90*
Water, Heavy		*3.40*	*3.70*	*3.80*
Fire, Rd. Bottom		*2.30*	*2.55*	*2.95*
Well		*2.55*	*2.87*	*3.15*

Bucks, Saw—

Hoosier.....₩ gro. $36.00

Bull Rings—See *Rings, Bull*

Butts— Brass—

Wrought, list, Sept., '96.15@—%
Cast Brass, Tiebout's.....50%

Cast Iron—

Fast Joint, Broad....40&10@50%
Fast Joint, Narrow....40&10@50%
Loose Joint.....70&10@75%
Loose Pin.....70&10@75%
Mayer's Hinges.....70@70&5
Parliament Butts.....70@70&5

Wrought Steel—

	Discount.
Reversible and Broad	*75&5%*
Light Reversible, Light Narrow	*75&10%*
Loose Joint, Narrow, L't Inside Blind, etc.	*75%*
Back Flaps, Table, Chest.	*70&10%*

Extra, 10&10@—

Cages, Bird—

Hendryx Brass: Series 3000, 5000, 1100, 5%; 1200, 33⅓%; 200, 300, 600, 900 .....40&10%
Hendryx Bronze: Series 700, 800.... 40&10%
Hendryx Enameled.....40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong.....per lb. 4@4¼ ¢
Sharp, 1 prong...per lb., 4¼@4¾ ¢
Burke's Blunt, 4@4¼ ¢; Sharp 4½@4¾ ¢

Gautier, Blunt, 4@4¼¢; Sharp, 4½@4¾¢; Perkins', Blunt, ℔ lb, 3.65¢; Sharp, 4.15¢

Can Openers—
See *Openers, Can.*

Cans, Milk—

	5	5	10 gal.
Illinois Pattern	$1.35	1.85	2.35 each.
New York Pattern	1.50	2.20	2.45 each.
Baltimore Pattern	1.50	2.20	2.45 each.
Dubuque	1.35	1.60	1.75 each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$18.00	60.00	129.60 gro., net.

Caps, Percussion—

Eley's E. B ..... 52@55¢
G. D ..... per M 34@35¢
F. L ..... per M 40@42¢
G. E ..... per M 48@50¢
Musket ..... per M 62@63¢

Primers—

Berdan Primers, $2 per M ... 20%
B. L. Caps (Sturtevant Shells) $2 per M 20%
All other primers per M. $1.52@1.60

Cartridges—

Blank Cartridges:
32 C. F., $5.50 ..... 10&5%
38 C. F., $7.00 ..... 10&5%
22 cal. Rim, $1.50 ..... 10&5%
32 cal. Rim, $2.75 ..... 10&5%
B. B. Caps, Con. Ball, Swgd. $1.20
B. B. Caps, Round Ball $1.40
Central Fire 25%
Target and Sporting Rifle .. 15&5%
Primed Shells and Bullets. 15&10%
Rim Fire, Sporting 50%
Rim Fire, Military ..... 15&5%

Casters—

Bed ..... 70@70&10%
Plate ..... 60&10@60&10&5%
Philadelphia ..... 75@75&10%
Acme, Ball Bearing 33⅓%
Boss ..... 70&10%
Boss Anti-Friction ..... 70&10%
Gem (Roller Bearing) 80%
Martin's Patent (Phoenix) 45%
Standard Ball Bearing 45%
Tucker's Patent low list 30%
Yale (Double Wheel) low list 50%

Cattle Leaders—
See *Leaders, Cattle.*

Chain, Coil—

American Coil, Straight Link:

3-16	¼	5-16	⅜	7-16	½	9-16
$3.70	5.90	4.95	4.20	4.05	3.95	3.90
⅝	¾	⅞ to 1		1⅛ to 1¼ inch.		
$3.85	3.70	3.65		3.80		

German Coil ..... 60&10&10@70%

Halter—

Halter Chains ..... 60&5@60&10%
German Pattern Halter Chains, list July 24, '97 ..... 60&10&10%
Covert Mfg. Co, Halter ..... 35&5%
Covert's Saddlery Works Halter 70%

Cow Ties—
See *Halters and Ties.*

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6½—6-3, Str'ght, with ring .$25.00
6½—6-2, Str'ght, with ring .$26.00
6½—8-2, Str'ght, with ring .$30.00
6½—10-2, Str'ght, with ring .$35.00
NOTE.—Add 2c per pair for Hooks. Twist Traces 2c per pair higher than Straight Link.
Eastern Standard Traces, Wagon Chain, &c ..... 60&10%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron ..... 60&10%
Brass ..... 60&10%
Safety Chain ..... 70&10%
Gal. Pump Chain ..... lb. 4@4½%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion 40%
Covert Sad. Works:
Breast, Hold Back, Rein 70%
Oneida Community:
Am. Dog Leads and Kennel Chains, 40@40&5%
Niagara Dog Leads and Kennel Chains ..... 45@60&5%
Wire Goods Co.:
Dog Chain ..... 70&10%
Universal Dbl.-Jointed Chain 50%

Chain and Ribbon, Sash—

Oneida Community:
Copper Chain, 60&5%; Steel Chain, 60%
Pullman:
Bronze Chain, 60%; Steel Chain, 60&10%
Sash Chain Attachments, per set..8¢
Aluminoy Sash Ribbon, per 100 ft. ..... $1.25@$3.00
Sash Ribbon Attachments, per set..8¢

Chalk—(From Jobbers.)

Carpenters' Blue .... gro., 40@—¢
Carpenters' Red .... gro., 35@—¢
Carpenters' White ... gro., 30@—¢
See also Crayons.

Checks, Door—

Bardsley's 45%
Pullman, per gro. $54.00
Russwin 60%

Chests, Tool—

American Tool Chest Co.:
Boy's Chests, with Tools 35%
Youths' Chests, with Tools 40%
Gentlemen's Chests, with Tools..30%
Farmers', Carpenters', etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty 50%
Tool Cabinets 50%
C. E. Jennings & Co.'s Machinists' Tool Chests ..... 33⅓&10%

Chisels—
Socket Framing and Firmer

Standard List ... 75&10@75&10&5%
Buck Bros. 30%
Chirles Buck 30%
C. E. Jennings & Co.:
Socket Firmer No. 10 ..... 60%
Socket Framing No. 15 ..... 60%
Ohio Tool Co.'s 70%
Swan's 75%
L. & I. J. White ..... 30@10&5%
L. & I. J. White, Tanged ..... 25&5%

Tanged—

Tanged Firmers ..... 35 1-3@40%
Buck Bros. 30%
Charles Buck 30%
C. E. Jennings & Co. Nos. 191, 181..25%

Cold—

	lb.
Cold Chisels, good quality	13@15¢
Cold Chisels, fair quality	11@12¢
Cold Chisels, ordinary	9@10¢

Chucks—

Almond Drill Chucks 35%
Almond Turret Six-Tool Chuck 35%
Beach Pat., each $8.00 ..... 35&5%
Empire 25%
Blacksmiths' 25%
Jacobs' Drill Chucks 35%
Pratt's Positive Drive 25%
Skinner Patent Chucks:
Independent Lathe Chucks ..... 40&10%
Universal, Reversible Jaws 40%
Combination, Reversible Jaws 40%
Drill Chucks, New Model, 25%; Standard, 40&10%; Skinner Pat., 25%; Positive Drive 33⅓%
Planer Chucks 30%
Face Plate Jaws ..... 40&10%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 21, ... 35%
Scroll Combination, Nos. 82 and 84 ..... 30%
Geared Scroll, Nos. 33, 34 and 35..35%
Independent Iron, Nos. 18 and 318.40%
Independent Steel, No. 64 ..... 30%
Union Czar Drill, Nos. 000, 101, 103 ..... 35%
Universal 11, 12, 16, 17, 13, 14, 15..40%
Universal, No. 42 ..... 35%
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50 ..... 40%
Steel Face Plate Jaws, Nos. 70 and 72 ..... 35%
Westcott Patent Chucks:
Lathe Chucks 50%
Little Giant Auxiliary Drill 50%
Little Giant Double Grip Drill..50%
Little Giant Drill, Improved 50%
Oneida Drill 50%
Scroll Combination Lathe 50%

Clamps—

Adjustable, Hammers' ..... 20@20&5%
Carriage Makers', P., S. & W. Co. ..... 40&10@50%
Besly, Parallel ..... 33⅓&10%
Lineman's, Utica Drop Forge & Tool Co. 40%
Wood Workers, Hammers' ..... 40&10%
Saw Clamps, see Vises, Saw Filers'.

Cleaners, Drain—

Iwan's Champion, Adjustable 55%
Iwan's Champion, Stationary 45%

Sidewalk—

Star Socket, All Steel..℔ doz. $4.05 net
Star Shank, All Steel..℔ doz. $3.24 net
W. & C. Shank, All Steel, ℔ doz., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—

Foster Bros. 30%
Fayette R. Plumb 30%
L. & I. J. White 30%

Clippers, Horse and Sheep—

Chicago Flexible Shaft Company: 20%
'98 Chicago Horse, each ... $8.75
1902 Chicago Horse, each .. $10.75
20th Century Horse, each..$5.00
Lightning Belt Horse, each..$15.00
Chicago Belt Horse, each..$20.00
Stewart's Enclosed Gear Horse, each $6.75
Stewart's Patent Sheep Shearing Machine, each $12.75

Clips, Axle—

Regular Styles, list July 1, '05. 80%

Cloth and Netting, Wire
—See *Wire, &c.*

Cocks, Brass—

Hardware list:
Compression, Plain Bibbs, Globe, Kerosene, Racking, &c., Cocks ..... 70@70&10%

Coffee Mills—
See *Mills, Coffee.*

Collars, Dog—

Nickel Chain, Walter B. Stevens & Son's list 40%
Leather, Walter B. Stevens & Son's list 40%

Combs, Curry—

Metal Stamping Co. 40%

Mane and Tail—

Covert's Saddlery Works ..... 60&10%

Compasses, Dividers, &c.

Ordinary Goods ..... 75&5@75&10%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Double, 65%; Inside or Outside 65%
Calipers, Wing 60%
Compasses 50%
Wm. Scholhorn Co.:
Excelsior Dividers 60%
Lodi Dividers 75%

Conductor Pipe,—

L., C. L. to Dealers:

Territory:	*Galvanized Galv. Steel.*	*Charcoal Iron.*	*Copper. 14, 16&20 oz.*
Eastern:			
70&10%	60&7½%	40&10%	
Central:			
70&2½%	60%	40&7½%	
Western and Southern:			
65&10%	50&10&2½%	40&5%	
	Galvanized		
	Galv. Steel.	*Charcoal Iron.*	*Copper. 14, 16&20 oz.*
So. Western			
62½&7½%	50&5%	40&2½%	

Terms, 60 days; 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

Gal. each..	2	3	4	6	8
Labrador ...	$1.20	$1.50	$1.80	$2.10	$2.70
Gal.	3	4	6	8	
Iceland, ea..	$1.80	$2.10	$2.40	$3.00	
Gal.	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15
White Enameled, 25%; Agate Lined, 25%					

Coopers' Tools—
See *Tools, Coopers'.*

Coppers' Soldering—

Soldering Coppers, 3 lbs. to pair and heavier, 23@24¢; lighter than 3 lbs. to pair ..... 25@26¢

Cord— Sash—

Braided, Drab ..... lb. 35¢
Braided, White, Com., Nos. 8 to 12, 24¢; No. 7, 24½¢; No. 6, 25½¢.
Cable Laid Italian ..... lb., A, 18¢; B, 16¢
Common India ..... lb. 10@10½¢
Cotton Sash Cord, Tw'ted. 17@19¢
Patent Russia ..... lb...@14¢
Cable Laid Russia .... lb...@15¢
India Hemp, Braided .. lb...@18¢
India Hemp, Twisted .. lb. 12@13¢
Patent India, Twisted. lb. 12@13¢
Anniston Cordage Co.: ℔ lb, solid Braided, Nos. 8 to 12, $0.24; No. 7, $0.24½; No. 6, $0.25½; ℔ doz., 50 ft., Oriole, $2.00; 50 ft., Columbia, $0.85; 50 ft., Victors, $1.00; 50 ft., 6-Thread, $1.10; 60 ft., 3-Thread, $0.95; 50 ft., Manila, $1.40; 60 ft., Jute, $0.75.
Pearl Braided, cotton, No. 6, ℔ lb, 25½¢; No. 7, 25¢; Nos. 8 to 12, 24½¢
Eddystone Braided, Nos. 8, 9 and 10, 25¢; 7, 25½¢; 6, 26½¢.
Harmony Cable Laid Italian, Nos. 7 to 10 ..... ℔ lb 23 ¢
Peerless:
Cable Laid, Italian, 16¢; Russian, 14¢; India ..... 12 ¢
Braided India ..... 18 ¢
Pullman:
Wire Sash Cord 10%
Sash Cord Attachments, per doz. 10¢
Samson, Nos. 8 to 12:
Braided, per lb., Drab Cotton, 40¢; Italian Hemp, 40¢; Linen, 55¢; White Cotton or Spot....35 ¢
Massachusetts, White ..... ℔ lb 30 ¢
Massachusetts, Drab ..... ℔ lb 35 ¢
Phoenix, White, Nos. 8 to 12, 27¢; No. 7, 27½¢; No. 6, 28½¢.
Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢; B, Drab, 40¢; B, White, 35¢; Italian Hemp, 40¢; Linen....57½¢
See also Chain and Ribbon.

Wire, Picture—

List Oct., '00 .....
85&10&10@85&10&10&5%
Hendryx Standard Wire Picture Cord, 85&10%

Cradles—

Grain ..... 40&12½%

Crayons—

White Round Crayons, Cases, 100 gro., $6.50@$7.50 at factory, but lower prices made by jobbers

D. M. Steward Mfg. Co.: 20%, Case lots, 25%.

Genuine.	Per gro.
Round Pencil, $2.25; Square Pencil, $1.75; Flat Crayon, $2.50; Metal Workers' Crayon, $3.00; Rolling Mill Crayon, $3.00.	
Compo.	Per gro.
Round Pencil, $1.50; Square Pencil, $1.50; Flat Crayon, $1.50; Metal Workers' Crayon, $2.50; Rolling Mill Crayon, $2.50; Railroad Crayon, $4.00; Compo. Crayon, $4.00.	

Case lots, 50&25%

Zelnicker's Lumber:
Red, Blue, Green ..... ℔ gro. $6.50
Black ..... ℔ gro. $4.00
See also Chalk.

Crooks, Shepherds'—

Fort Madison, per doz., Heavy, $7.00; Light $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden 50%

Cutlery, Table—

International Silver Company:
No. 12 M'd'n Knives, 1847, ℔ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor ..... ℔ doz. $3.00
Wm. Rogers & Son ..... ℔ doz. $2.50

Cutters— Glass—

H. H. Mayhew Co. 40%
Red Devil 50%
Smith & Hemenway Co. 50%
Woodward 40%

Meat and Food—

American 30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Enterprise:

Nos.	5	10	12	22	32	
Each	$2	$3	$2.75	$4.50	$6	25@25&7½%

No. 202, $1.50 ..... 40&7½%
Dixon's ..... ℔ doz. 40@50%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal ..... 40&10@50%
Little Giant ..... ℔ doz. 40@50%

Nos.	365.	310	312	320
	$35.00	$48.00	$44.00	$72.00 $68.00

N. E. Food Choppers 25%
New Triumph No. 605, ℔ doz. $24.00 ..... 40@50%
Russwin Food, No. 1, $24.00; No. 2, $27.00 ..... 45&10&10%
Woodruff's ..... ℔ doz. 40@50%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c. 40%
Kraut Cutters, 24 x 7, 26 x 8, 30 x 9 ..... 55%
Kraut Cutters, 36 x 12, 40 x 12....40%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....℔ doz. $3.00
Combined Slaw Cutter and Corn Grater ..... ℔ doz. $4.00
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife..℔ gr. $18@$20
Slaw Cutters, 2 Knife..℔ gr. $22@$30

Tobacco—

All Iron, Cheap .. doz. $1.25@$4.50
Enterprise ..... 25@30%
National, ℔ doz., No. 1, $21; No. 2, $18 ..... 40%

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger..per doz., $9.00
Iwan's Imp'ved Post Hole Auger.40&5%
Vaughan Pattern Post Hole Augers, ℔ doz., $6.25
Perfection Post Hole Diggers, ℔ doz. $8.25
Split Handle Post Hole Diggers, ℔ doz. $7.25
Kohler's, ℔ doz., Universal, $14.00; Little Giant, $12.00; Hercules, $10.00; Invincible, $9.00; Rival, $8.00; Pioneer $7.00
Never-Break Post Hole Diggers, ℔ doz., $24.00 ..... 60%
Samson, ℔ doz. $34.00 ..... 25%

Dividers—See *Compasses.*

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, ℔ doz., $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—
See *Knives, Drawing.*

Dressers, Emery Wheel—

Diamond Emery Wheel Dressers....35%
Diamond Wheel Dresser Cutters....35%

Drills and Drill Stocks—

Common Blacksmiths' Drill, each ..... $1.50@$1.75
Breast, Millers Falls ..... 15&10%
Breast, P., S. & W. 40%
Goodell Automatic Drills..40&5@40&10%
Johnson's Automatic Drills, Nos. 2 and 3 ..... 16⅔%
Johnson's Drill Points 16⅔%
Millers Falls Automatic Drills.33⅓&10%
Ratchet, Curtis & Curtis 25%
Ratchet, Parker's, 40%; Weston's..40%
Ratchet, Weston's, Style H Improved 40%
Ratchet, No. 012 ..... 40%
Ratchet, Whitney's, P., S. & W..50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00 ..... 33⅓%

Twist Drills—

Bit Stock ..... 60&10&10@70%
Taper and Straight Shank .... 60&10@60&10&5%

Drivers, Screw—

Screw Driver Bits, per doz..45@50¢
Balsey's Screw Holder and Driver, ℔ doz., 2½-in., $6; 4-in., $7.50; 6-in., ℔ 50%
Buck Bros.' Screw Driver Bits..... 30%
Champion 50%
Edson 40%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Gay's Double Action Ratchet..... 35%
Goodell's Auto..50&10&10@50&10&10&5%
Hurwood 40%
Mayhew's Black Handle 40%
Mayhew's Monarch ..... 40&10%
Millers Falls, Nos. 20 and 21 ... 25&10%
Millers Falls, Nos. 11, 12, 41, 42..15&10%
New England Specialty Co..... 50&10%
Smith & Hemenway Co..... 40&5%
H. D. Smith & Co.'s Perfect H'dle.40%
Stanley R. & L. Co.'s:
No. 64, Varn. Handles, 65%; No. 86, 75%; Victor, 55%; Defiance..70%
Swan's:
Nos. 7565 to 7568, 50%; No. 7540, 40&10%

Eave Trough, Galvanized—

Territory.	*L. C. L. Galvanized Galv. Steel.*	*Charcoal Iron.*	*Copper. 14, 16&20 oz.*
Eastern:			
80&2½%	70&7½%	40&10%	
Central:			
75&10&7½%	70%	40&7½%	
Western and Southern:			
70&20&7½%	60&15&2½%	40&5%	
So. Western:			
70&20%	65&2½%	40&2½%	

Terms.—2% for cash. Factory shipments generally delivered.
See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments, all territories: Galv. Steel and Galv. C. I. Gauge ..... 60&10%
No. 26 ..... 50%

No. 2½.....25%
No. 22.....30%
Copper.....50%

Elbows, Stove Pipe—

Dover, one piece.....40%
Perfect Elbows (R. M. Co.).....40%

Emery, Turkish—

	4 to 46	54 to 220	Flour.
Kegs	*lb. 5 ¢*	*5½ ¢*	*5½ ¢*
½ Kegs	*lb. 5¼ ¢*	*5¾ ¢*	*5¾ ¢*
¼ Kegs	*lb. 5½ ¢*	*6 ¢*	*6 ¢*
10-lb. cans, 10 in case	*6½ ¢*	*7 ¢*	*8 ¢*
10-lb. cans, less than 10	*10 ¢*	*10 ¢*	*8 ¢*
Less quantity ..	*10 ¢*	*10 ¢*	*8 ¢*

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice
—See *Squeezers, Lemon.*

Fasteners, Blind—

Zimmerman's .....50&10%
Walling's .....40&10%

Cord and Weight—

Ives 40%

Faucets—

Cork Lined .....50@50&10%
Metallic Key, Leather Lined .. 60&10@70%
Red Cedar .....40&10@50%
Petroleum .....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I. X. L. Cork Lined..50%
John Sommer's Reliable Cork Lined.. 50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's Q. K. Cork Lined....50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
McKenna, Brass:
Burglar Proof, N. P.....25%
Improved, ¾ and ⅞ inch.....25%
Self Measuring:
Enterprise, ℔ doz. $36.00.....40&10%
Lane's, ℔ doz. $36.00.....40&10%
National Measuring, ℔ doz. $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List revised Nov. 1, 1899.

Best Brands.....70&10@75&10%
Standard Brands.75&10@75&10&10%
Lower Grade....75&10&10@80&10%

Imported—

Stubs' Tapers, Stubs' list, July 2, '97.....33 1-3@40%

Fixtures, Fire Door—

Richards Mfg. Co.:
Universal, No. 103; Special, No. 104 .....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—

Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz	*$3.25*	*3.75*	*4.25*	*4.75*

P., S. & W. Co.....30&10@40%
Reading Hardware Co.....60%
Stowell's Giant Grindstone Hanger.. ℔ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy, 50&10&10%; Light.....60&10%

Fodder Squeezers—
See *Compressors.*

Forks—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ezy Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....60%
Victor, Header.....60%
Champion, Hay.....60%
Champion, Header.....60%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....65%
W. & C. Favorite Wood Barley.....40%
Plated.—See Spoons.

Frames— Saw—

White, S'g't Bar, per doz..75@80¢
Red, S'g't Bar, per doz...$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.	*1*	*2*	*3*	*4*	*6*
Each	*$1.30*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*

Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped.. 3.65
Waterproof Dbl. Taped.. 4.40
Waterproof Tpl. Taped.. 5.15
10&5%

Gates, Molasses and Oil—

Stebbins' Pattern.....80&10%

Gauges—

Marking, Mortise, &c...50&10@60%
Chapin-Stephens Co.:
Marking, Mortise, &c.50&10@50&10&10%
Scholl's Patent.....50&10@50&10&10%
Door Hangers.....50@50&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....35%
Marking and Mortise.....60%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.

Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—

Chapin-Stephens Co.....60@60&10&10%

Glue, Liquid Fish—

Bottles or Cans, with Brush.. 25&10@50%
International Glue Co. (Martin's)..40%

Grease, Axle—

Common Grade....*gro. $4.50@6.00*
Dixon's Everlasting, 10-lb pails, ea. 85¢; in boxes, ℔ doz., 1 lb. $1.20; 2 lb.....$2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—

Pike Mfg. Co.....33⅓@33⅓&10%

Grindstones—

Bicycle Emery Grinder.....$6.50
Bicycle Grindstones, each.....$2.50@3.00
Pike Mfg. Co.:
Improved Family Grindstones, per inch, ℔ doz.....$2.00 } 25%
Pike Mower and Tool Grinder, each .....$6.00 } 25

Grips, Nipple—

Perfect Nipple Grips.....40&10&2%

Halters and Ties—

Cow Ties.....60&10@60&10&5%
Covert Mfg. Co.:
Web 45%
Jute Rope.....45%
Sisal Rope.....33⅓%
Cotton Rope.....45%
Hemp Rope.....48%
Covert's Saddlery Works:
Web and Leather Halters.....70%
Jute and Manila Rope Halters....70%
Sisal Rope Halters.....60&20%
Jute, Manila and Cotton Rope Ties 70%
Sisal Rope Ties.....60&10%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters..45@50&5%
Niagara Cow Ties...45&5@50&10&5%
E. T. Rugg & Co.:
Leather Halters.....50%
Web Halters and Webbing.....60%
Jute and Sisal Rope Halters.....60%
Jute and Sisal Horse and Cattle Ties 60%
Cotton Horse Ties.....60%
Livery Ties, Braided.....60%

Hammers—

Handled Hammers—

Heller's Machinists'...40&10@40&10&10%
Heller's Farriers.....40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.22, $1.50, $1.75.....50%
Peck, Stow & Wilcox, Steel.....50%
Fayette R. Plumb:
Plumb, A. E. Nail.....33⅓&7⅛@33⅓&10&7⅛%
Engineers' and B. S. Hand.....50&7⅛&5@50&10&7⅛&5%
Machinists' Hammers.50&5@50&10&5%
Riveting and Tinners'.....40&2½@40&10&2½%

Heavy Hammers and Sledges—

Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢.....80&10%
Over 5 lb., per lb., 30¢..80&10&10%
Wilkinson's Smiths'...lb. 9½@10¢

Handles—

Agricultural Tool Handles

Axe, Pick, &c....60&10@60&10&5%
Hoe, Rake, &c.....45@50%
Fork, Shovel, Spade, &c.:
Long Handles.....45@50%
D Handles.....50@50&5%

Cross-Cut Saw Handles—

Atkins'.....40%
Champion .....45@45&10%
Disston's.....50%

Mechanics' Tool Handles—

Auger, assorted...*gro. $2.50@$3.00*
Brad Awl.....*gro. $1.65@$1.75*
Chisel Handles:
Apple Tanged Firmer, gro. assorted .....$2.40@$2.65
Hickory Tanged Firmer, gro. assorted .....$2.15@$2.40
Apple Socket Firmer, gro. assorted .....$1.75@$1.95
Hickory Socket Firmer, gro. assorted .....$1.45@$1.60
Hickory Socket Framing, gro. assorted .....$1.60@$1.75
File, assorted.....gro. $1.30@$1.40
Hammer, Hatchet, &c. 60&10@60&10&5%
Hand Saw, Varnished, doz. 80¢85¢; *Not Varnished*...65@75¢
Plane Handles:
Jack, doz. 30¢; Jack, Bolted.75¢
Fore, doz. 45¢; Fore, Bolted.90¢
Chapin-Stephens Co.:
Carving Tool.....40@40&10%
Chisel .....65@65&10%
File and Awl.....65@65&10%
Saw and Plane.....40@40&10%
Screw Driver.....40@40&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.... ℔ gro. $0.85@$1.50

Hangers—

NOTE—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.

Allith Mfg. Co.:
Reliable, ℔ doz., No. 1, $8.00; No. 2 .....$9.60
Allith No. 3, ℔ doz.....$21.00
Allith Adjustable No. 6, ℔ doz..$30.00
Reliable Parlor Door, ℔ set....$2.50
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin 25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00.....70%
Roller Bearing, No. 11, $15.00.70%
Roller Bearing, Ex. Hy., No. 22, $18.00.....70%
Hinged Hangers, $16.00....60&10%
Lane Bros. Co.:
Parlor, Ball Bearing, $4.00; Standard, $3.15; No. 105, $2.85; New Model, $2.80; New Champion $2.25
Barn Door, Standard.....60&5%
Hinged.....net $6.40
Covered .....60&2%
Special .....70&5%
Lawrence Bros.:
Advance and Sterling.....60&10%
Cleveland and Peerless.....75%
Clipper, No. 75.....60%
Crown .....60&10%
Easy Parlor Door, Dbl. Sets, $2.50; Single Sets, $1.25. Giant .....60&5%
Hummer .....70&5%
New York.....60&10%
McKinney Mfg. Co.:
No. 1, Special, $15.....60&10%
No. 2, Standard, $18.....60&10%
Hinged Hangers, $16.....50%
Meyers' Stayon Hangers....60&5%
Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track No. 3...$2.00
Ball B'r'g St'l Track No. 10.50&10%
Roller B'r'g St'l Track No. 12.$2.15
Roller B'r'g St'l Track No. 13.$2.30
Roller B'r'g, Nos. 39, 41, 43, 70&10%
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&10%
Trolley B. D. No. 17, $1.25; F. D. No. 120, $2.10; No. 121, $2.25; No. 150.....$2.35
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 41..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&10%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.00
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24, $1.30; No. 27, $1.40; No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43; 44, Sizes 1 and 2..70&10%
Anti-friction, No. 42; No. 44, sizes 2½ and 3.....60&10%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Safety Door Hanger Co.:
Storm King Safety.....60%
U. S. Standard Hinge.....60%
Stowell Mfg. & Foundry Co.:
Acme Parlor Ball Bearing....40%
Ajax Hinge Door.....60%
Apex Parlor Door.....50&10&5%
Atlas, 60%; Freight Car Door.60%
Baggage Car Door.....50%
Climax Anti-Friction.....50&10%
Elevator 40%
Express 50%
Interstate .....60&10%
Lundy Parlor Door.....50&10%
Magic, 60%; Rex Hinge Door.60%
Matchless .....60&10%
Nansen .....70&5%
Parlor Door, 50&10%; Railroad, 50&10%
Street Car Door.....50%
Steel, Nos. 300, 404, 500....50&10%
Underwriters' Fire Door.....40%
Wild West Warehouse Door..50%
Zenith for Wood Track....50&10%
A. L. Sweet Iron Works:
Check Back, 70%; Eagle.....70%
Climax Anti-Friction.....50&10%
Hylo Hinge, New Perfection, Pilot, Pilot Hinge.....60%
Rider Wooster.....65%
Western Pattern.....70%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing.50&15&10&5%

Extra 10% often given.

Hangers— Garment—

Pullman Trouser, ℔ gro., 1 pair Flat Aluminoy, $9.00; 1 pair Round Nickeled, $9.00; 4 pair Round Nickeled, $27.00; 1 pair Flat Gun Metal, $12.00; 1 pair Flat Black Enameled, $7.50; 1 pair Wood Clamp, $13.00; Skirt Hangers, Folding, per gro., $21.00; Coat Hangers, Folding, per gro., $8.00; Garment Hanger Rods, Round Nickeled, per gro., $15.00; Garment Hanger Loops, Round Nickeled, per gro.....$15.00
Victor Folding.....℔ gro. $9.60
Western, W. G. Co.....70&10%

Gate—

Myers' Patent Gate Hangers, ℔ doz. net $4.50

Joist and Timber—

Lane Bros. Co.....30%

Hasps—

Griffin's Security Hasp.....50%
McKinney's Perfect Hasp, ℔ doz..50%

Hatchets—

Regular list, first quality....50%
Second quality $1.00 per doz. less than first quality.

Heaters, Carriage—

Clark, No. 5, $1.75; No. 5B, $2.00; No. 3, $2.25; No. 3D, $2.75; No. 7D, $3.00; No. 5E, $3.25; No. 1, $3.50.....15%
Clark Coal, ℔ doz. $0.75.....10%

Hinges—

Blind and Shutter Hinges—

Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo,)

No.	*1*	*3*	*5*
Doz. pair.....	*$0.75*	*1.35*	*2.70*

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	*1*	*1½*	*2*	*2½*
Doz. pair.....	*$0.70*	*.65*	*.60*	*.55*

Mortise Reversible Shutter (Buffalo, &c.):

No.	*1*	*1½*	*2*
Doz. pair.....	*$0.70*	*.65*	*.60*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.:
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets, without screws, $0.90; with screws, $1.20.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&10&5%
Acme, Lull & Porter.....75&10%
Queen City Reversible.....75&10%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
1868, Old Pat'n, Nos. 1, 3 & 5.... 75&10&5%
Tip Pat'n, Nos. 1, 3 & 5 .....75&10&5%
Buffalo Gravity Lockir , Nos. 1, 3 & 5.....75&10&5%
Shepard's Double Locking, Nos. 20 & 25.....70%
Champion Gravity Locking, No. 75.75%
Steamboat Gravity Locking, No. 10.75%
Pioneer, Nos. 060, 45 & 5½.....75%
Empire, Nos. 101 & 103.....70%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60%

Gate Hinges—

Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L't'chs.	*$2.00*	*2.70*	*5.00*
Hinges only.....	*1.40*	*2.05*	*3.80*
Latches only.....	*.70*	*.70*	*.35*

New England:
With Latch.....*doz.* ....@$2.00
Without Latch...*doz.* ....@$1.60
Reversible Self-Closing:
With Latch.....*doz.* ....@$1.75
Without Latch...*doz.* ....@$1.35
Western:
With Latch.....*doz. $1.75*
Without Latch.....*doz. $1.15*
Wrightsville Hardware Co.:
Shepard's or Clark's, doz. sets.

Nos.	1	2	3
Hinges with Latches.	$2.00	2.70	5.00
Hinges only.....	1.40	2.05	3.80
Latches only.....	.70	.70	1.35

Pivot Hinges—

Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....45%

Spring Hinges—

Holdback, Cast Iron...*$6.50@$7.00*
Non-Holdback, Cast Iron$6.25@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....45%
Bardsley's Patent Checking..15%
Bommer Bros.:
Bommer Ball Bearing Floor..40%
Bommer Spring Hinges.....40%
No. 999 Wrot. Steel Hold Back, ℔ gr. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor..50%
Garden City Engine House.....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, ℔ gr., No. 14, $9.00; No. 18, $25.00
Columbia, Adj., No. 7, ℔ gr. $12.00
Gem, new list.....30%
Clover Leaf.....℔ gr. $12.00
Oxford, new list.....30%
Lawson Mfg. Co., Matchless....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....℔ gr. $9.00
Ball Bearing Floor Hinge....50%
Ohio Detachable Screen Door Hinge .....℔ gr. $12.00
Superior Spring Hinge Co.:
Superior Floor Hinges.....33⅓%
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr. $12.50
Ideal, No. 4.....℔ gr. $9.00
New Idea No. 1.....℔ gr. $9.00
New Idea, Double Acting....45%
New Idea Floor.....45%
Van Wagoner:
Ball Bearing.....25%
No. 777 Sh't Steel Holdb'k.℔ gro. pr.$9

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list December 23, 1904:
Light Strap Hinges..65%
Heavy Strap Hinges..75%
Light T Hinges.....60%
Heavy T Hinges.....55%
Extra H'y T Hinges..70%
Hinge Hasps.....45%
Cor. Heavy Strap....75%
Cor. Ex. Heavy T..70&10%

Extra, 10&5@10&10%

Screw Hook and Strap. { *6 to 12 in.* ..lb. 3¾¢ ; *1½ to 20 in.* ..lb. 3½¢ ; *22 to 36 in.* ..lb. 3¼¢

Screw Hook and Eye:
¾ to 1 inch.....lb. 6¼¢
⅝-inch.....lb. 7¼¢
½-inch.....lb. 8½¢

Hitchers, Stall—
Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—
Per doz.

	15	16	17	18
Inch				
Galv. Open	$2.50	2.75	3.00	3.25
Jap. Open	$1.90	2.10	2.25	2.55
Galv. Funnel	$3.00	3.30	3.60	3.90
Jap. Funnel	$2.45	2.65	2.85	3.30

Masons' Etc.—
Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $0.95
Steel Mortar, No. 158.....each $1.25

Hoes— Eye—
Scovil and Oval Pattern.....60&10@60&10&10%
Grub, list Feb. 23, 1899.....70&10@75&10%
D. & H. Scovil.....33⅓%

Handled—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Cronk's Weeding No. 1, $2.00; No. 2, $2.25
Ft. Madison Cotton Hoe.....70&10&10%
Ft. Madison Crescent Cultivator Hoe, ℔ doz.....70&10%
Ft. Madison Mattock Hoes:
Regular Weight.....℔ doz. 66⅔%
Junior Size.....℔ doz. $4.00
Ft. Madison Sprouting Hoe..℔ doz. 50%
Ft. Madison Dixie Tobacco Hoe.....75&10&7½%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....45&10%
W. & C. Ivanhoe.....75&2%
W. & C. Cultivator Hoe.....$3.15
B. B. 6 in., Cultivator Hoe.....$3.35
B. B. 6½ in.....$3.50
Acme Wedding.....℔ doz. net, $4.35
W. & C. L'tning Shuffle Hoe, ℔ doz. $4.85

Hoisting Apparatus—
See *Machines, Hoisting.*

Holders— Bit—
Angular, ℔ doz. $24.00.....45&10%

Door—
Bardsley's.....45%
Empire.....50%
Pullman.....60%
Superior.....33⅓%

File and Tool—
Nicholson File Holders and File Handles.....33⅓&10%

Fruit Jar—
Triumph Fruit Jar Holder, ℔ gross, $10.80; ℔ doz.....$1.25

Hones—Razor—
Pike Mfg. Co., Belgian, German and Swaty.....50%

Hooks—Cast Iron—
Bird Cage, Reading.....40%
Clothes Line, Reading List.....40%
Clothes Line, Stowell's.....70%
Coat and Hat, Reading.....45&20%
Coat and Hat, Stowell's.....70%
Coat and Hat, Wrightsville.....65%
Harness, Reading List.....40%
Harness, Stowell's.....60%
School House, Stowell's.....70%

Wire—
Belt.....80&10@..%
Wire C. & H. Hooks:.....75&10@75&10&10%
Columbian Hdw Co., Gem.....70&10%
Parker Wire Goods Co., King..70&10%
Van Wagoner, Coat and Hat.....70%
Western W. G. Co, Molding.....75%
Wire Goods Co.:
Acme, 60&10%; Chief, 70%; Crown, 75%; Czar, 65%; V Brace, 75%; Czar Harness, 50&10%.

Wrought Iron—
Box, 6 in., per doz., $1.00; 8 in., $1.25; 10 in., $2.50.
Cotton.....*doz. $1.05@$1.25*
Wrought Staples, Hooks, &c.—See Wrought Goods

Miscellaneous—
Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz. $4.75; Medium, $5.35; Heavy, $6.25
Grass, best, all sizes, per doz. $1.60
Grass, common grades, all sizes, per doz.....*$1.30*
Whiffletree.....*lb. 5¾@6¢*
Hooks and Eyes:
Brass.....60&5@60&10&5%
Malleable Iron.....70@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks.....40%
Covert Saddlery Works' Self Locking Gate and Door Hook.....60%
Ft. Madison Cut-Easy Corn Hooks, ℔ doz. $3.25 net
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—
See *Nails, Horse.*

Horseshoes—
See *Shoes, Horses.*

Hose, Rubber—
Garden Hose, ¾-inch:
Competition.....*ft. 5 @ 6 ¢*
3-ply Guaranteed..*ft. 8 @ 9 ¢*
4-ply Guaranteed..*ft. 10 @11 ¢*
Cotton Garden, ¾-in., coupled:
Low Grade.....*ft. 8 @ 9 ¢*
Fair Quality.....*ft. 10 @11 ¢*

Irons— Sad—
From 4 to 10.....*lb. 3 @3½¢*
B. B. Sad Irons.....*lb. 3¼@3½¢*
Mrs. Potts', cents per set:

	Nos. 50	55	60	65
Jap'd Tops	65	62	75	72
Tin'd Tops	70	67	80	77

New England Pressing..*lb. 3¾@4¢*

Pinking—
Pinking Irons.....*doz. 60¢*

Irons, Soldering
See *Coppers.*

Jacks, Wagon—
Covert Mfg. Co.:
Auto Screw.....30&2%; Steel, 45%
Covert's Saddlery Works:
Daisy.....60&10%; Victor, 60%
Lockport.....50%
Lane's Steel.....30&10&2%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co.'s.....25%

Kettles—
Brass, Spun, Plain.....*20@25%*
Enameled and Cast Iron—See Ware, Hollow.

Knives—
Butcher, Kitchen, &c.—
Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co.....60%

Corn—
Wilkinson Wilcut Brand Knives and Hooks.....60%
Withington Acme, ℔ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—
Standard List.....*75&5@75&10%*
C. E. Jennings & Co., Nos. 45, 46...60%
Jennings & Griffin, Nos. 41, 42.....60%
Ohio Tool Co.'s.....70%
Swan's.....75%
Watrous.....16%
L. & I. J. White.....20&5@25%

Hay and Straw—
Serrated Edge, per doz. $5.75@6.00
Iwan's Sickle Edge.....℔ doz. $9.50
Iwan's Serrated.....℔ doz. $10.00

Mincing—
Buffalo.....℔ gro. $13.00

Miscellaneous—
Farriers'.....*doz. $3.00@3.25*
Wostenholm's.....℔ doz. $3.00@3.25

Knobs—
Base, 2½-inch, Birch, or Maple, Rubber Tip.....*gro. $1.25@$1.50*
Carriage, Jap., all sizes.....*gro. 40@45¢*
Door, Mineral.....*doz. 65@70¢*
Door, Por. Jap'd.....*doz. 70@75¢*
Door, Por. Nickel..*doz. $2.05@2.15*
Bardsley's Wood Door, Shutters, &c.15%

Lacing, Leather—
See *Belting, Leather—*

Ladders, Store, &c.—
Allith Mfg. Co., Reliable.....50%
Lane's Store.....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—
L. & G. Mfg. Co. (low list).....25%
P. S. & W.....50%
Reading.....50%

Lanterns—Tubular—
Regular Tubular, No. 0.....*doz. $4.25@4.50*
Lift Tubular, No. 0.....*doz. $4.75@5.00*
Hinge Tubular, No. 0.....*doz. $4.75@5.00*
Other Styles.....*40@40&5%*

Bull's Eye Police—
No. 1, 2¾-inch.....*$2.75@3.00*
No. 2, 3-inch.....*$3.00@3.25*

Lasts and Stands, Shoe—
Stowell's Atlas, Malleable Iron.....50%
Stowell's Badger, Cast Iron.....50%

Latches— Thumb—
Roggin's Latches, with screw..*doz. 35@40¢*

Door—
Allith Mfg. Co., Automatic, No. 400, ℔ doz.....$4.00
Cronk & Carrier Mfg. Co., No. 101, ℔ doz. $2.90
Cronk & Carrier Mfg. Co., Latch, Hasp and Staples.....50%
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50
Stowell's Steel.....50%

Leaders, Cattle—
Small.....*doz. 50¢; large, 60¢*
Covert Mfg. Co.:
Cotton, Hemp and Jute, 45%; Sisal, 33⅓%.

Lifters, Transom—
R. & E.....33⅓%

Lines—
Wire Clothes, Nos.	18	19	20
100 feet	$2.25	2.00	1.75
75 feet	$1.75	1.55	1.10

Anniston Waterproof Clothes, 50 ft., ℔ gro., $25.00; Gilt Edge, $23.00; Air Line, $23.00; Acme, $18.00; Alabama, $17.00; Empire, $16.00; Advance, $14.00; Eclipse, $13.50; Chicago, $11.50; Standard, $10.50; Columbia, $9.50; Allston, $13.50; Calhoun, $12.00.
Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....℔ gr. 20%
Masons' Lines, Shade Cord, &c.: White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 86 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%

Locks— Cabinet—
Cabinet Locks...33⅓@33⅓&7½%

Door Locks, Latches, &c —
NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....40%

Elevator—
Stowell's.....50%

Padlocks—
Wrought Iron....75&10&5@80&5%
Net prices are general.
R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—
Ives' Patent:
Bronze and Brass, 62½%; Crescent, 50&10%; Iron, 62½%; Window Ventilating, 60%; Robinson Pat. Ventilating Sash Lock, 40%; Wrought Bronze and Brass, 55%; Wrought Steel, 55%.
Pullman Patent Ventilating Lock..25%
Reading.....40%

Machines—Boring—
Com. Upr't, without Augers..*$2.00*
Com. Ang'l'r, without Augers..*$2.25*
Swan's Improved.....40&10%
Angular.
Jennings', Nos. 1 and 4.....35&5%
Millers' Falls.....5.75
Snell's, Rice's Pat. 2.50 2.75

Corking—
Reisinger Invincible Hand Power.....℔ doz. $48.00

Fence—
Williams' Fence Machines....each, $5.50

Hoisting—
Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.....20%

Ice Cutting—
Chandler's.....12½%

Washing—
Boss Washing Machine Co.: Per doz.
Boss No. 1.....$57.00
Boss Rotary.....$34.00
Champion Rotary Banner No. 1..$24.00
Standard Champion No. 1.....$48.00
Standard Perfection.....$26.00
Cint. Square Western.....$30.00
Uneeda American, Round.....$30.00

Mallets—
Hickory.....*45&5@50%*
Lignumvitæ.....*45&5@50%*
Tinners' Hickory and Applewood.....*doz. 45&5@50%*

Mangers, Stable—
Swett Iron Works.....50%

Mashers, Vegetable—
Western, W. G. Co., Potato....60&10%

Mats, Door—
Elastic Steel (W. G. Co.), new list..50&10%
Keystone Wire Matting Co.:
Keystone.....50%
Ideal.....50%

Mattocks—
See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—
Enterprise Mfg. Co.....20@25%
National list Jan. 1, 1902.....30%
Parker's Columbia & Victoria..50&10@60%
Parker's Box and Side.....50&10@60%
Swift, Lane Bros. Co.....30%

Mowers, Lawn—
NOTE.—Net prices are generally quoted
Cheapest.....*all sizes, $1.85@2.00*
Cheap.....*all sizes, $2.00@2.50*
Better Grade..*all sizes, $2.50@4.50*

	12	14	16	18-in.
High Grade	$4.50	4.75	5.00	5.25

Continental.....60&5%
Great American.....70%
Great American Ball B'r'g, new list..70%
Quaker City.....70%
Pennsylvania.....60&5%
Pennsylvania, Jr., Ball Bearing....60%
Pennsylvania Golf.....50%
Pennsylvania Horse.....33⅓&5%
Pennsylvania Pony.....40&5%
Granite State:
Style A, Low Wheel....70&10&10&5%
Style B, Low Wheel.....70&10&5%
Style C, High Wheel.....70&10%
Style D, High Wheel.....70%
Philadelphia:
Styles M., S., C., K., T.....70&5%
Style A, all Steel.....60&5%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, special list.50%

Nails—
Wire Nails and Brads, Miscellaneous.....*85&10@85&10&5%*
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers' &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	...40&5%
Champlain	28	26	25	24	23	.....50%
Coleman	13	12	12	11	11	.....net
New Haven	23	21	20	19	18	...40&5%
Western						℔ lb 8½¢

Jobbers' Special Brands.....*per lb. 9@10¢*

Picture—

	1½	2	2½	3	3½ in.
Brass H'd.	.45	.55	.60	.70	.. gro
Por. Head	1.10	1.10	1.10		.. gro

Nippers—
See *Pliers and Nippers.*

Nuts—
Cold Punched: Square, Blank or Tapped..*Off list.*
4.90@5.00¢
Hexagon, Blank or Tapped..*5.30@5.40¢*
Square, Blank, C. & T...*5.20@5.30¢*
Hexagon, Blank, C. & T...*5.90@6.00¢*
Hot Pressed:
Square, Blank.....*5.10@5.20¢*
Hexagon, Blank.....*5.50@5.60¢*
Square, Tapped.....*5.00@5.10¢*
Hexagon, Tapped.....*5.40@5.50¢*

Oakum—
Rest.....*lb., 6½¢*
U. S. Navy.....*lb., 6¢*
Navy.....*lb., 5¢*
Plumbers' Spun Oakum.....*3¾¢*
In carload lots ⅛¢ lb. off, f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper.....*50&10%*
Tin or Steel.....*70@70&5%*
Zinc.....*70@70&5%*
Chase or Paragon:
Brass and Copper.....*50&10%*
Tin or Steel.....*65&10%*
Zinc.....*65&10%*
Malleable, Hammers' Imp'ed, Nos. 11, 12 and 13, 20%; Old Pattern, Nos. 1, 2, 3, 50%.
American Tube & Stamping Co.:
Spring Bottom Cans.....70@73&10%
Railroad Oilers, &c.....60@63&10%

Openers— Can— *Per doz.*
Sprague, Iron Handle....*30@35¢*
Sprague, Wood Handle...*35@40¢*
Sardine Scissors.....*$1.75@$3.00*
National.....50&10%
Stowell's Sprague.....℔ doz. 35@45¢
Vim Tin Shear and Can Opener, ℔ doz., 75c.; per gro., $7.50

Egg—
Nickel Plate, ℔ doz., $2.00; Silver Plate, $4.00.

Packing—
Asbestos Packing, Wick and Rope.....*17@22¢*

Rubber—
(*Fair quality goods.*)
Sheet, C. I......*11@12¢*
Sheet, C. O. S......*11@12¢*
Sheet, C. B. S......*12@13¢*
Sheet, Pure Gum.....*40@45¢*
Sheet, Red.....*40@50¢*
Jenkins' '96, ℔ lb 80¢.....25@25&5%

Miscellaneous—
American Packing...*lb. 7@10 ¢*
Cotton Packing.....*lb. 16@25 ¢*
Italian Packing.....*lb. 9@12½¢*
Jute.....*lb. 4@ 4½¢*
Russia Packing.....*lb. 8@11 ¢*

Pails, Creamery—
R. M. Co., with gauges—No. 1, $6.25; No. 2, $6.50 ℔ doz.

Pails, Water, Well, &c.—
See *Buckets.*

Pans— Dripping—
Standard List.....*65&10%*

Fry—
Common Lipped:

Nos.	1	2	3	4	5
Per doz.	$0.75	0.80	0.90	1.10	1.30

Refrigerator, Galva.—

Inch	12	14	16	18
Per doz.	$1.95	2.25	2.80	3.15

Roasting and Baking—
Regal, R. M. Co., ℔ doz., Nos. 5, $4.50; 10, $5.25; 20, $5.75; 30, $6.25.
Savory, ℔ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ℔ gro.:

No.	40	50	60	140	180	160
	$30.00	35.00	42.00	34.00	39.00	46.00

Paper—Building Paper

Asbestos:	lb.
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft.	6¢
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lbs., per 100 sq. ft.	8¢
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.	7¢
	Per roll
Rosin Sized Sheathing. 500 sq. ft. Light weight, 25 lbs. to roll	*35@40¢*
Medium weight, 30 lbs. to roll,	*40@45¢*
Heavy weight, 40 lbs. to roll..	*56@60¢*
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.	
Deafening Felt, 9, 8 and 4½ sq. ft. to lb. ton.....*$48.00*	
Red Rope Roofing, 250 sq. ft. per roll.....*$1.75*	

Tarred Paper—
1 ply (roll 300 sq. ft.), ton.....*$32.50@35.50*
2 ply, roll 108 sq. ft.....*55¢*
3 ply, roll 108 sq. ft.....*75¢*
Slater's Felt (roll 500 sq. ft.)..*70¢*

Sand and Emery—
Flint Paper and Cloth..*50&10@60%*
Garnet Paper and Cloth....*25%*
Emery Paper and Cl'h..*50&10@60%*

Parers— Apple—
Advance.....℔ doz. $4.00
Baldwin.....℔ doz. $4.00
Bonanza Improved.....each $6.50
Daisy.....℔ doz. $4.00
Dandy.....each $7.50
Eureka Improved.....each $20.00
Family Bay State.....℔ doz. $15.00
Improved Bay State.....℔ doz. $36.00
Little Star.....℔ doz. $5.00
New Lightning.....℔ doz. $7.00
Reading 72.....℔ doz. $3.25

Reading 78.....℔ doz. $6.25
Rocking Table.....℔ doz. $6.20
Turn Table '98.....℔ doz. $6.00
White Mountain.....℔ doz. $5.00

Potato—

Saratoga.....℔ doz. $7.00
White Mountain.....℔ doz. $6.00

Picks and Mattocks—

List Feb. 23, 1899.....75%
Cronk's Handled Garden Mattock, ℔ doz., $6.40.....33⅓%

Pinking Irons—

See *Irons, Pinking.*

Pins, Escutcheon—

Brass.....60@60&10%
Iron, list Nov. 11, '85..60@60&10%

Pipe, Cast Iron Soil—

Carload lots.
Standard, 2-6 in..50&10@50&10&5%
Extra Heavy, 2-6 in......65&10%
Fittings.....70&10@70&10&5%

Pipe, Merchant—

Consumers, Carloads.

	Steel. Blk.	Steel. Galv.	Iron. Blk.	Iron. Galv.
⅛ & ¼ in.	71%	55%	68%	52 %
⅜ in.	73%	59%	70½	56 %
½ in.	75%	63%	72½	60 %
¾ to 6 in.	79%	69%	76½%	66½%
7 to 12 in.	74%	59%	71½%	56 %

Pipe, Vitrified Sewer—

Carload lots.
Standard Pipe and Fittings, 2 to 24 in.:
New England.....68%
New York and New Jersey..71%
*Maryland, Delaware, E. Pa.*73%
West. Pa. and West Va....75%
Virginia.....76%
Ohio, Michigan and Ky....75%
Indiana.....77%
NOTE.—Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested:	C. L.	L. C. L.
5 in., per 100 joints	$7.00	$8.00
6 in., per 100 joints	7.50	8.50
7 in., per 100 joints	8.50	9.50

Planes and Plane Irons—Wood Planes—

Bench, first qual.....40&10%
Bench, Second qual.....50&10%
Molding.....33⅓&10%
Bailey's (Stanley R. & L. Co.).....40%
Chapin-Stephens Co.:
Bench, First Quality.....40@40&10%
Bench, Second Quality....50@50&10%
Molding.....33⅓@33⅓&10%
Toy and German.....40@40&10%
Chaplin's.....60%
Ohio Tool Co.:
Bench, First Quality.....40@40&10%
Bench, Second Quality....50@50&10%
Molding.....33⅓@33⅓&10%
Adjustable Wood Bottom.....60%
Union.....60%

Iron Planes—

Bailey's (Stanley R. & L. Co.).....40%
Chaplin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....35%
Ohio Tool Co.'s Iron Planes.....60%
Union.....60%

Plane Irons—

Wood Bench Plane Irons.....
25&10@30%
Buck Bros.....30%
Chapin-Stephens Co.....30@30&10%
Ohio Tool Co.:.....30%
Stanley R. & L. Co.....35%
Union.....50%
L. & I. J. White.....20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse.....℔ doz. $8.50

Plates—

Felloe.....lb. 4@4¼¢
Self-Sealing Pie Plates (R. M. Co.). ℔ doz. $2.00.....50%

Pliers and Nippers—

Button Pliers....75&10@75, 10, 5%
Gas Burner, per doz., 5 in., $1.25 @ $1.30; 6 in., $1.45 @ $1.50.
Gas Pipe.. 7 8 10 12-in.
$2.00 $2.25 $3.00 $3.75
Acme Nippers.....50&5%
Cronk & Carrier Mfg. Co.:
American Button.....75&10%
Cronk's.....60%
Stub's Pattern.....50%
Combination and others.....33⅓%
Heller's Farriers' Nippers, Pincers and Tools.....40&10@40&10&10%
The Nettleton Mfg. Co. Reversible Cutting Nippers.....40%
P., S. & W. Tinners' Cutting Nippers.....40%
Wm. Schollhorn Co.:
Bernard, 33⅓%; Elm City, 33⅓%; Lodi, 50%; Paragon, 50%.
Swedish Side, End and Diagonal Cutting Pliers.....50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds.....40%

Plumbs and Levels—

Chapin-Stephens Co.:
Plumbs and Levels.....30@30&10&10%
Chapin's Imp. Brass Cor.40@40&10&10%
Pocket Levels.....30@30&10&10%
Disston's Plumbs and Levels.....70%
Disston's Pocket Levels.....70%
C. E. Jennings & Co.'s Iron.....33⅓%
C. E. Jennings & Co.'s Iron, Adjustable.....40&7½%
Stanley R. & L. Co.....45%
Stanley's Duplex.....35%
Wood's Extension.....33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ℔ doz. No. 1, $6.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00.....50%

Points, Glaziers'—

Bulk and 1-lb. papers.....lb. 10¢
½-lb. papers.....lb. 9@10½¢
¼-lb. papers.....lb. 9¾@11¢

Pokes, Animal—

Ft. Madison Hawkeye.....℔ doz. $3.25
Ft. Madison Western.....℔ doz. $4.00

Police Goods—

Manufacturers' Lists...25@25&5%
Tower's.....25%

Polish—Metal, Etc—

Glasbrite, No. 2, 5 lb can (powder), each, $1.25; ℔ doz., $12.00; No. 2, 10 lb can (cake), each, $2.50; ℔ doz., $24.00.
Prestoline Liquid, No. 1 (½ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $0.12....40%
Prestoline Paste.....40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 50¢; ℔ gro. $4.50; ½ lb boxes, ℔ doz. $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25; ℔ gro., $12.00.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75; ℔ gro., $18.00.
Wynn's White Silk, ½ pt. cans, ℔ doz.....$2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ¼ pt. cans, ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can....each, $0.65
Ladd's Black Beauty Liquid, per 100 tins.....$6.75
Joseph Dixon's, ℔ gr. $5.75.....10%
Dixon's Plumbago.....℔ lb 8¢
Fireside.....℔ gr. $2.50
Gem, ℔ gr. $4.50.....10%
Japanese.....℔ gr. $3.50
Jet Black.....℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans, ℔ doz. $1.50
Wynn's:
Black Silk, 5 lb pail.....each 70¢
Black Silk, ½ lb box.....℔ doz. $1.00
Black Silk, 5 oz. box.....℔ doz. $0.75
Black Silk, ½ pt. liq.....℔ doz. $1.00

Poppers, Corn—

1 qt., Square.....*gro. $8.00*
1 qt., Round.....*gro. $9.00*
1½ qt., Square.....*gro. $10.00*
2 qt., Square.....*gro. $12.00*

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts.....each $1.30

Potato Parers—

See *Parers, Potato.*

Pots, Glue—

Enameled.....40%
Tinned.....35%

Powder—

In Canisters:
Duck, 1 lb.....*each 45¢*
Fine Sporting, 1 lb....*each 75¢*
Rifle, ½-lb.....*each 15¢*
Rifle, 1-lb.....*each 25¢*
In Kegs:
12½-lb. kegs.....*$3.50*
25-lb. kegs.....*$4.50*
King's Semi-Smokeless:
Keg (25 lb bulk).....$6.50
Half Keg (12½ lb bulk).....$3.50
Quarter Keg (6¼ lb bulk).....$1.90
Case 24 (1 lb cans bulk).....$8.50
Half case (1 lb cans bulk).....$4.50

King's Smokeless:	Shot Gun.	Rifle.
Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk).	7.25	8.75

Robin Hood Sm'less Shot Gun..50&20%

Presses—

Fruit and Jelly—

Enterprise Mfg. Co.....20@25%

Seal Presses—

Morrill's No. 1, ℔ doz., $20.00.....50%

Pruning Hooks and Shears

See *Shears.*

Pullers, Cork—

Invincible Cork Puller.....$21.00

Pullers, Nail—

Cyclops.....50%
Miller's Falls, No. 3, ℔ doz., $12.00..33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz., $20.00.....50%
Pearson No. 1, Cyclone Spike Puller, each $30.00.....50%
Scranton, Case Lots:
No. 2B (large).....$5.50
No. 3B (small).....$5.00
Smith & Hemenway Co.:
Diamond B, case lots, ℔ doz., No. 2, $6.00; No. 3, $5.50.
Giant No. 1, ℔ doz. $18; No. 2, $16.50; No. 3, $15.....33⅓%
Staple Pullers.....60%
Parrot Tack and Stub Puller, ℔ doz., 75c.; ℔ gro., $6.00

Pulleys, Single Wheel—

Inch	1½	1¾	2	3
Awning or Tackle, doz.	$0.30	.45	.60	1.05

Hay Fork, Swivel or Solid Eye.

doz., ¼ in., $1.25; 5 in., $1.55			
Inch	2	2½	2¾
Hot House, doz.	$0.65	.85	1.20
Inch	1¼	1½	1¾ 2
Screw, doz.	$0.16	.19	.23 .30
Inch	1¾	2	2¼ 2½
Side, doz.	$0.25	.40	.55 .60
Inch	1½	1¾	2 2½

Stowell's:
Ceiling or End, Anti-Friction..60&10%
Dumb Waiter, Anti-Friction..60&10%
Electric Light.....60%
Side, Anti-Friction.....60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz, 1¾ and 2 in......*16@19¢*
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in..16@19¢
Acme.....1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 7, 2 in.... ℔ doz. 50%
Grand Rapids All Steel Noiseless..50%
Ideal.....70&10%
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Tpw..1¾ in., 14½¢; 2 in., 16½¢
Star.....1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern.....60@60&10%
Pitcher Spout.....80@80&10%
Wood Pumps, Tubing, &c..45@50%
Barnes Dbl. Acting (low list).....50%
Barnes' Pitcher Spout.....75&10&5%
Contractors' Rubber Diaphragm No. 2, B. & L. Block Co.....$16.00
Daisy Spray Pump.....℔ doz. $6.75
Flint & Walling's Fast Mail Hand, (low list).....55%
Flint & Walling's Fast Mail (low list).....55&5%
Flint & Walling's Tight Top Pitcher.80%
National Specialty Mfg. Co., Measuring, $6.00.....30%
Mechanical Sprayer.....$6.00
Myers' Pumps (low list).....50%
Myers' Power Pumps.....50%
Myers' Spray Pumps.....50&10%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch...	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch...	3	3¼	3½	3¾ 4
	$3.30	3.60	3.85	4.10 4.40

Plunger Cup Leathers—Per 100:

Inch...	2½	3	3½	4
	$2.75	3.85	5.00	6.00

Punches—

Saddlers' or Drive, good.....*doz. 50@75¢*
Spring, single tube, good quality.....*$1.75@2.00*
Revolving (4 tubes).....*doz. $3.50@3.75*
Bemis & Call Co.'s Cast St'l Drive.50%
Bemis & Call Co.'s Check.....55%
Morrill's Nos. 1AA, 1A, 1B, 1C, $15.00.....50%
Hercules, 1 die, each $5.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Wm. Schollhorn Co.:
Bernard.....33⅓%
Lodi, 50%; Paragon.....50%
Steel Screw, B. & K. Mfg. Co.....50%
Tinners' Hollow, P., S. & W. Co...40%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.44.....60%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron.....
2½@2¾¢
Sliding Door, Wrought Brass, 1¼ in., lb., 36¢.....30%
Allith Mfg. Co.: Reliable Hanger Track, per ft., No. 1, 5½¢; No. 2, 7¢; No. 3.....12½¢
Cronk's:
Double Braced Steel Rail..℔ ft. 2¾¢
O. N. T. Rail.....2½¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.00; 1¼ x 3-16 in., 3.50.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.10; 1¼ x 3-16 in., $3.60.
Lane's:
Hinged Track, ℔ 100 ft., 1 in., $3.40; 1¼ in., $4.10.
O. N. T. ℔ 100 ft., 1 in., $2.75; 1¼ in., $3.50; 1½ in., $4.00.
Standard, 1¼ in.....℔ 100 ft. $4.00
Lawrence Bros.:
℔ 100 ft. No. 201, $4.00; No. 202, $4.00
New York, 1 x 3-16 in., ℔ 100 ft. $2.75
McKinney's:
Hinged Hanger Rail, ℔ ft., 11¢..50%
None Better.....℔ ft. 3¾¢
Standard.....℔ ft. 4 ¢
Myers' Stayon Track.....60&10%
Richards' Mfg. Co.:
Common, 1 x 3-6 in., $3.00; 1½ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail....60&10%
Lag Screw Rail, No. 65.....50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.
No. 50.....60&10%
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 45, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.
Safety Door Hanger Co.'s Storm King Safety.....60%
Safety Door Hanger Co.'s U. S. Standard.....60%
Stowell's:
Cast Rail.....℔ ft. 1¾ ¢
Steel Rail, Plain.....25%
Wrought Bracket, 1 3-16 in....℔ ft. 3¢
Wrought Bracket, 1½ x 5-16..℔ ft. 7¢
Swett's Hylo, ℔ ft. 11¢.....60%
P. L. B. Steel Rail.....℔ 100 ft. $3.00
No. 0, 1 x 3-16.....℔ 100 ft. $2.75

Rakes—

NOTE.—Many goods are sold at net prices.
Fort Madison Red Head Lawn....$3.25
Fort Madison Blue Head Lawn....$2.70
Jackson Lawn, 29 and 30 teeth, ℔ doz., net.....$4.25
Cronk's:
New Champion Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00...75%
Victor Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00.....80%
Queen City Lawn, ℔ doz., 20 teeth, $3.45; 24, $3.60.....net.
Anticlog Lawn, ℔ doz.....$4.00
Malleable Garden.....70&10%
Kohler's:
Lawn Queen, 20-tooth.....℔ doz. $3.45
Lawn Queen, 24-tooth.....℔ doz. $3.60
Paragon, 20-tooth.....℔ doz. $2.75
Paragon, 24-tooth.....℔ doz. $3.00
Steel Garden, 14-tooth....℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00
Weldless Steel Garden.....75&5%

Rasps, Horse—

Disston's.....75%
Heller Bros.'.....70&5@70&10&5%
McCaffrey's American St'd...60&10&5%
New Nicholson.....70&10@75%
See also Files.

Razors—

Boras—I C.....60%
Fox Razors, ℔ doz., No. 42, $20.00; No. 44, $20.00; No. 82, Platina, $25.00. } Dis. 40%
Red Devil.....50%
Silberstein:
Carbo Magnetic, $18.00; Griffon, No. 65, $15.00; Griffon, No. 00, $12.00; all other Razors, 40%.

Safety Razors—

Kampfe Bros.:
Star Safety, 25%; Star Interchangeable, 25%; Star Safety Corn, 25%.
Silberstein.....40%

Reels, Fishing—

Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber Populo, Nickeled Populo.....20%
Aluminum, German silv., Bronze.25%
1240 N, 124 N.....20%
3004 N, 06 N, 6 RM, G 8.....25%
4 N 6 PN, 24 N, 28 PN.....20%
2904 P, 33⅓%; 2904 PN, 33⅓%; 0924 N, 33⅓%; 02284 N, 33⅓%; 002904 PN, 33⅓%; 802 N, 33⅓%.
986 PN, 2904 N, 974 PN.....25%
5009 PN, 5009 N.....20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR.....20%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—*List July 1, 1903.*

Japanned, Electroplated and Bronzed.....70&10%

Revolvers—

Single Action.....95¢@$1.00
Double Action, except 44 cal..$1.85
Double Action, 44 caliber....$2.00
Automatic.....$3.45
Hammerless.....$4.00

Riddles, Hardware Grade

16 in......*per doz.*.$2.50@$2.75
17 in......*per doz.*.$2.75@$3.00
18 in......*per doz.*.$3.00@$3.25

Rings and Ringers—Bull Rings—

	2	2½	3 inch.
Steel	$0.70	0.75	0.80 doz.
Copper	$1.00	1.15	1.40 doz.

Rea's Improved Self-Piercing, Copper, 2 in., ℔ doz., $1.25; 2½ in., $1.50; 3 in., $1.75.

Hog Rings and Ringers—

Hill's Rings, gro. boxes.$4.00@4.50
Hill's Ringers, Gray Iron.....
doz. 50@55¢
Hill's Ringers, Malleable Iron..
doz. 70@75¢
Blair's Rings...*per gro.$4.75@5.25*
Blair's Ringers.per doz. $0.60@ .65
Brown's Rings..*per gro.$5.00@5.50*
Brown's Ringers.per doz.$0.60@ .65

Rivets and Burrs—

Copper.....45@45&5%
Iron or Steel.....75@75&5%

Bifurcated and Tubular—

Assorted in Boxes.
Bifurcated, per doz. boxes, pasteboard boxes, 23@25¢; Tin boxes, 29@32¢.
Tubular, per doz. boxes, 50 count, 29@32¢; 100 count, 51@58¢.

Rollers—

Acme, Stowell's Anti-Friction.....50%
Cronk's Stay No. 65, $0.90; No. 50.....$1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56.....$0.84
Lane's Stay.....40%
Richards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos. 55 and 57.....50%
Underwriters', Nos. 59, 60.....50%
Favorite, No. 54.....60%
Stowell's Barn Door Stay..℔ doz. $1.00
Swett's Anti-Friction.....50%
Screw and Spike Stay.....℔ doz. 65¢
Hinge Adjustable Stay.....℔ doz. 90¢

Rope—

Manila, 7-16 in. diam. and larger:
Pure.....*lb., 12½¢*
Sisal, 7-16 in. diam. and larger:
Pure.....*lb., 9½¢*
Sisal, 7-16 in. diam. and larger:
No. 2 quality.....*lb., 8¢*
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Mixed.....*lb., 8¢*
Pure.....*lb., 9½¢*
Sisal, Tarred, Medium Lath Yarn, Coarse and Untarred:
Mixed.....*lb. 8¢*
Pure.....*lb., 9½¢*
Cotton Rope:
Best, ¼-in. and larger..16½@18¢
Medium, ¼-in. and larger, 15½@16½¢
Common, ¼-in. and larger.. 10¢
In coils, ½¢ advance.
Jute Rope:
Thread No. 1, ¼-in. & up..lb. 7¢
Thread No. 2, ¼-in. & up..lb. 6½¢
Old Colony Manila Transmission Rope.....℔ lb 17½¢

Wire Rope—

Galvanized.....37½@42½%
Plain.....45@42½%

Ropes, Hammock—

Covert Mfg. Co.:
Jute, 45%; Sisal.....33⅓%
Covert Saddlery Works.....60&5%

Rulers, Desk—

Stimpson & Son:
Boxwood and Maple.....30&10%

Rules

Boxwood .....90&10&10%
Ivory .....35&10@35&10&5%
Chapin-Stephens Co.:
Boxwood .....60@60&10%
Flexifold .....27½&10&10&2½%
Ivory .....35@35&10&10%
Miscellaneous .....50@50&10&10%
Combination .....55@55&10%
Stationers' .....10@10&10%
Keuffel & Esser Co.:
Folding, Wood.....35&10%
Folding, Steel.....33⅓&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....60%
Stanley R. & L. Co.:
Boxwood 62½%
Ivory 45%
Miscellaneous 60%
Zig Zag.....40%
Zig Zag, Pin Joint.....42½%
Upson Nut Co.:
Boxwood .....60@60&10%
Ivory .....35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—
See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins':
Circular 50%
Band .....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50%
One-Man Saw, 40%; Wood Saws, 40%; Hand, Compass, &c., 40%.
Chapin-Stephens Co.:
Turning Saws and Frames..30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws.....30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth.50%
Band, 2 to 14 in. wide.....60%
Band, ⅛ to 1¾.....60%
Crosscuts 50%
Narrow Crosscuts.....55%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....35%
Woodsaw Blades.....35%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8.....25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination.....30%
Compass, Key Hole, &c.....25%
Butcher Saws and Blades.....35%
C. E. Jennings & Co.'s:
Back Saws.....25%
Butcher Saws.....50%
Compass and Key Hole Saws..35&5%
Framed Wood Saws.....30%
Hand Saws.....20&2½%
Wood Saw Blades.....35%
Millers Falls:
Butcher Saws.....15&10%
Star Saw Blades.....15&10%
Peace & Richardson's Hand Saws...30%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws.50%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Hand Saws, Bay State Brand.....40%
Compass, Key Hole, &c..25@25&7½%
Wood Saws.....35@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws....40&10@50%
Butcher Saws Blades.....35@40%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws.....50%

Hack Saws—

Atkins' Hack Saw Blades A A A..35%
Disston's:
Concave Blades.....25%
Keystone 40%
Hack Saw Frames.....30%
Fitchburg File Works, The Best...35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180....
40&7½%
Hack Saws, Nos. 175, 180, complete, 40&7½%
Goodell's Hack Saw Blades.....40%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades....35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades.....35%
Diamond Hack Saw Frames.....50%
Star Hack Saws and Blades.....15&10%
Sterling Hack Saw Blades....30&10&5%
Sterling Hack Saw Frames...30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00..10%
Victor Hack Saw Blades.....25%
Victor Hack Saw Frames.....40%

Scroll—

Barnes, No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scalers, Fish—

Covert's Saddlery Works.....60&10%

Scales—

Family, Turnbull's....50@50&10%
Counter:
Hatch, Platform, ½ oz. to 4 lbs. .....doz. $5.50
Two Platforms, ½ oz. to 8 lbs. .....doz. $16.00
Union Platform, Plain.$1.70@1.90
Union Platform, Stpd.$1.85@2.15
Chatillon's:
Eureka 25%
Favorite 40%
Crocers' Trip Scales.....50%
Chicago Scale Co.:
The "Little Detective"....25 lbs 50%
Union or Family No. 2.....60%
Portable Platform (reduced list)..50%
Wagon or Stock (reduced list).25@35%
"The Standard" Portables.....50%
"The Standard" R. R. and Wagon.50%

Scrapers—

Box, 1 Handle.....doz. $2.00@2.25
Box, 2 Handle.....doz. $2.60@2.85
Ship....Light, $2.00; Heavy, $4.50
Adjustable Box Scraper (S. R. & L. Co.), $6.00.....45%
Chapin-Stephens Co., Box, 30@30&10&10%

Screens, Window and Frames—

Maine Screen Frames.....40&10&5%
See also *Doors.*

Screws—Bench and Hand

Bench, Iron, doz., 1 in., $2.50@ 2.75; 1⅛, $3.00@3.25; 1¼, $3.50@3.75
Bench, W'd, Beech. doz. 30@30&5%
Hand, Wood.....30@30&5%
R. Bliss Mfg. Co., Hand....30@30&10%
Chapin-Stephens Co., Hand..30@30&10%
Ohio Tool Co., Bench and Hand..30%

Coach, Lag and Hand Rail—

Lag, Cone Point, list Oct. 1, '99 .....75&15%
Coach, Gimlet Point, list Oct. 1, '99.....75&10%
Hand Rail, list Jan. 1, '81.... 70&10@75%

Jack Screws—

Standard List.....75&5@75&10%
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....50%
Swett Iron Works.....75@80%

Machine—

List Jan. 1, '98:
Flat or Round Head, Iron.... 50@50&10%
Flat or Round Head, Brass.... 50@50&10%

Set and Cap—

Set (Iron).....80%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap.....75%
Hex. Hd. Cap.....75%
Rd. Hd. Cap.....60&10%
Fillister Hd. Cap.....60&10&10%

Wood—

List July 23, 1903.
Flat Head, Iron.....87½&10@..%
Round Head, Iron...85 &10@..%
Flat Head, Brass....85 &10@..%
Round Head, Brass..80 &10@..%
Flat Head, Bronze...77½&10@..%
Round Head, Bronze.75 &10@..%
Drive Screws.....87½&10%

Scroll Saws—
See *Saws, Scroll.*

Scythes—

	Per doz.
Grass, No. 1, Plain	$6.25@6.75
Clipper, Bronzed Webb	$6.50@7.00
No. 3 Clipper, Pol'd Webb	$6.75@7.25
No. 6 Clipper and Solid Steel,	$7.00@7.50
Bush, Weed and Bramble, No. 2	$6.50@7.00
Grain, No. 1	$8.25@8.75
Bronzed Webb, No. 1	$8.50@9.00
Nos. 3 and 4 Clipper, Grain	$8.75@9.25
Solid Steel, No. 6	$9.25@9.75

Seeders, Raisin—

Enterprise .....25@30%

Sets— Awl and Tool—

Fray's Adj. Tool Handles, Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
C. E. Jennings & Co.'s Model Tool Holders 30%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18....15&10%

Garden Tool Sets—

Ft. Madison Three Plows, Hoe, Rake and Shovel.....℔ doz sets $9.00

Sets, Nail—

Octagon .....gro. $3.50@3.75
Buck Bros.....27½%
Cannon's Diamond Point, ℔ gro.$12.40%
Mayhew's .....℔ gro. $9.00
Snell's Corrugated, Cup Pt...℔ gro. $7.20
Snell's Knurled, Cup Pt....℔ gro. $7.20
Springfield Mach. Screw Co.:
Diamond Knurled Cup Pt. ℔ gro. $7.50

Rivet—

Regular list.....75@75&10%

Saw—

Aiken's:
Genuine .....50&10%
Imitation .....50&10%
Atkin's:
Criterion 40%
Adjustable 40%
Bemis & Call Co.'s:
Cross Cut.....30%
Plate 20%
Disston's Star and Monarch.....25%
Morrill's No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.00....50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 95, $15.60.....50%
No. 1 Old Style, $10.00.....50%
Special, $16.25.....50%
Giant Royal Cross Cut.....℔ doz. $8.00
Royal, Hand.....℔ doz. $4.50
Taintor Positive.....℔ doz. $6.75

Shaving

Fox Shaving Sets, No. 30.....
℔ doz., net, $24.00
Smith & Hemenway Co.'s.....60%

Sharpeners, Knife—

Chicago Wheel & Mfg. Co.....70%
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ℔ doz.....$1.50
Mounted Kitchen Sand Stone, ℔ doz.....$1.50
Natural Grit Carving Knife Hones, ℔ doz.....$3.00
Quick Cut Emery Carving Knife Hones, ℔ doz.....$1.50
Quick Edge Pocket Knife Hones, ℔ doz.....$2.50

Skate—

Smith & Hemenway Co.....20%

Shaves, Spoke—

Iron .....doz.$1.10@1.25
Wood .....doz.$1.75@2.25
Bailey's (Stanley R. & L. Co.).....45%
Razor Edge (Stanley R. & L. Co.)..35%
Chapin-Stephens Co.....30@30&10&10%
Goodell's, ℔ doz. $9.00.....15&10%
Wood's F1 and F2.....50%

Shears—

Cast Iron..	7	8	9 in.
Best	*$16.00*	*18.00*	*20.00 gro.*
Good	*$13.00*	*15.00*	*17.00 gro.*
Cheap	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality Jap....70@70&10%
Best quality, Nickel..60@60&10%
Fair quality, Jap....80@80&5%
Fair quality, Nickel..75@75&10%
Tailors' Shears.....40@40&10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailor's Shears.....10%
Wilkinson's Sheep, 1900 list, 30&10&5%
Grass, 50&10%; Horse or Mule, 50&10%

Tinners' Snips—

Steel Blades.....20&5@20&10%
Steel Laid Blades.....40&10@50%
Forged Handles, Steel Blades, Berlin, 50@50&5%
Heinisch's Snips.....40%
Jennings & Griffin Mfg. Co.'s, 6½ to 10 in.....50%
Niagara Snips.....40%
P., S. & W. Forged Handles.....20%

Pruning Shears—

Cronk's Hand Shears.....33⅓%
Cronk's Wood Handle Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ℔ doz. $18.00.....25%
Disston's Pruning Hook, ℔ doz. $12.00 .....25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades....50&10%
P. S. & W. Co.....33⅓%
Wilkinson's Hedge, Wilcut Brand, 60&10%
Wilkinson's Lawn and Border, Wilcut Brand.....60&10%

Sheaves—Sliding Door—

Stowell's Anti-Friction.....50%
Reading 40%
R. & E. list.....33⅓%
Wrightsville Hatfield Pattern.....80%

Sliding Shutter—

Reading list.....40%
R. & E. list.....33⅓%

Shells—Shells, Empty—

Brass Shells, Empty:
Climax, Club, Rival, 10 and 12 gauge.....65&5%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge 20%
Climax, Union, League, New Rival, 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge.....20%
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge.....33⅓
Robin Hood, Low Brass.....20&5%
Robin Hood, High Brass.....30&5%

Shells, Loaded—

Loaded with Black Powder..40%
Loaded with Smokeless Powder, medium grade.....40&5%
Loaded with Smokeless Powder, high grade.....40&10&10%
Robin Hood Smokeless Powder:
Robin Hood, Low Brass.....50%
Comets, High Brass.....50&10&5%

Shoes, Horse, Mule, &c.—

F.o.b. Pittsburgh:
Iron .....per keg $4.00
Steel .....per keg $3.75
Burden's, all sizes.....℔ keg $3.90

Shot—

Drop, up to B, 25-lb. bag....$1.85
Drop, B and larger ..... per 25-lb. bag, $2.10
Buck, 25-lb. bag.....$2.10
Chilled, 25-lb. bag.....$2.10
Dust, 25-lb. bag.....$2.30

Shovels and Spades—

Association List, Nov. 15, 1902..40%

Snow Shovels—

Long Handle.....$2.75@$3.00
Wood and Mail, D. Handle. $3.25@$3.50

Sieves and Sifters—

Hunter's Imitation..... gro.$9.50@10.00
Hunter's Genuine..... per gro. $12.00@12.50
Buffalo Metallic Blued, R. M. Co., ℔ gr.

14&16	16&18	18&20
$13.20	$13.50	$14.40

Shaker (Barler's Pat.) Flour Sifters, ℔ doz., $2.00.....20%

Sieves, Seamless Metallic

	Per dozen.			
Mesh	*14*	*16*	*18*	*20*
Iron Wire	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested....doz. $0.90@0.95
Mesh 20, Nested....doz. $1.00@1.05
Mesh 24, Nested....doz. $1.30@1.40

Sinks, Cast Iron—

Painted, Standard list:
12 x 12 to 22 x 36 in....60&5%
20 x 40 to 24 x 50 in.....55%
24 x 60 to 24 x 120 in.....35%
Barnes' low list:
Up to and including 20 x 36 in....60%
20 x 40 to 24 x 50 in.....55%
NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—

Cast Iron.....80@80&10%
Steel .....40@40&10%

Slates, School—

Factory Shipments.
"D" Slates.....50@50&10%
Eureka, Unexcelled Noiseless.. 60&5 tens
Victor A, Noiseless.60&5 tens 45%

Slaw Cutters—See *Cutters.*

Snaps, Harness—

German .....40@40&10%
Covert Mfg. Co.:
Derby, 30&2%; Yankee, 30&2%; Yankee Roller, 30&2%.
High Grade, 45%; Trojan.....45%
Jockey 35%
Covert's Saddlery Works:
Crown, 60%; German, 60%; Model, 60%; Triumph, 60%.
Oneida Community:
Harness Snaps, 1 inch.....60&5%
Swivel Snaps.....60%
Swivels 50%

Snaths—

Scythe 50%

Snips, Tinners—See *Shears.*

Spoons and Forks—

Silver Plated—

Good Quality.....50&10@60&5%
Cheap .....60@60&10%
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton .....40&10%
Rogers & Bro., William Rogers' Eagle Brand.....50&10%
Anchor, Rogers Brand.....60%
Wm. Rogers & Son.....60&10%

Miscellaneous—

German Silver.....60@60&5%
Cattaraugus Cutlery Co.:
Seneca Silver.....50%

Tinned Iron—

Teas .....per gro. 45@50¢
Tables.....per gro. $0.50@$1.00

Springs—Door—

Chicago (Coil).....40&10%
Gem (Coil).....20%
Pullman (Coil).....25%
Reliance (Coil).....40&10%
Star (Coil).....30%
Torrey's Rod, 39 in.....℔ doz. $1.10

Carriage, Wagon, &c.—

1¼ in. and Wider:	*Per lb.*
Black	*4@4¼¢*
Half Bright	*4@4¼¢*
Bright	*4½@4¾¢*

Painted Seat Springs:
1¼ x 3 x 26.....per pr. 42¢
1¼ x 3 x 28.....per pr. 70¢

Sprinklers, Lawn—

Enterprise .....25@30%
Philadelphia No. 1, ℔ doz. $12; No. 2, $15; No. 3, $24.....30%
Pleuger & Henger Mfg. Co.:
Cactus, 70%; Japanese, 75%; Nationals, 65%.

Squares—

Nickel plated.. } *List Jan. 5, 1900.*
Steel and Iron.. } *75&10@75&10&5%*
Rosewood Hdl. Try Square and T-Bevels .....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels .....40&10@40&10&10%
Disston's Try Sq. and T-Bevels....70%
Winterbottom's Try and Mitre, No. 1, 40%; No. 2.....50%

Squeezers, Lemon

Wood, Common, gro., No. 0, $5.25@$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap .....doz. $1.00
Good Grade.....doz. $1.25
Tinned Iron.....doz. $0.75@1.25
Iron, Porcelain Lined...doz. $1.75

Staples—

Barbed Blind.....lb. 6@6¼¢
Electricians', Association list.. 80&10&10&10%
Fence Staples, Plain, $2.25; Galvanized $2.55
Poultry Netting Staples..... per lb. 3¼@3½¢
Grand Crossing Tack Co.'s list..80&10%

Steels, Butchers'—

Dick's 30%
Foster Bros.'.....30%
C. & A. Hoffmann's.....40%

Steelyards—....30@30&10%

Stocks and Dies—

Blacksmiths' .....50@50&10%
Curtis Rev'ble Ratchet Die Stock..25%
Derby Screw Plates.....25%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25%

Stoners, Cherry—

Enterprise .....25@30%

Stones—Oil, &c.

Chicago Wheel & Mfg. Co., 1904 list:
Gem Corundum Oil, Double Grit.60%
Gem Corundum Axe, Single or Double Grit.....60%
Gem Corundum Slips.....60%
Gem Corundum Razor Hones....50%
Pike Mfg. Co., 1904 list: ℔ lb.
Arkansas St. No. 1, 3 to 5½ in.$2.80
Arkansas St. No. 1, 5½ to 8 in.$3.50
Arkansas Slips No. 1.....$4.00
Lily White Washita, 4 to 8 in.60¢
Rosy Red Washita, 4 to 8 in..60¢
Washita St., Extra, 4 to 8 in.50¢
Washita St., No. 1, 4 to 8 in.40¢
Washita St., No. 2, 4 to 8 in.30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Washita Slips, No. 2.....40¢
India Oil Stones (entire list)....33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....33⅓%
Quickcut Emery and Corundum Axe Stone, Double Grit.....33⅓%
Quickcut Emery Rubbing Bricks.33⅓%

Hindostan No. 1, R'g'lar, ₱ lb 8¢
Hindostan No. 1, Small, ₱ lb 10¢
Axe Stones (all kinds)
Turkey Oil Stones, Extra, 5 to 8 in. ₱ lb 90¢ } 33⅓%
Queer Creek Stones, 4 to 6 in. 20¢
Queer Creek Slips 40¢
Sand Stone 6¢

Scythe Stones—

Chicago Wheel & Mfg. Co.:
Gem Corundum, 10 in., $8.00 ₱ gro., 12 in., $10.80.
Norton Emery Scythe Stones:
Less than gross lots ₱ gro. $9.00
One gross or more ₱ gro. $7.20
Lots of 10 gross or more ₱ gro. $6.00
Pike Mfg. Co., 1901 list:
Black Diamond S. S. ₱ gro. $12.00
Lamoille S. S. ₱ gro. $11.00
White Mountain S. S. ₱ gro. $9.00
Green Mountain S. S. ₱ gro. $6.00
Extra Indian Pond S. S. ₱ gro. $7.50
No. 1 Indian Pond S. S. ₱ gro. $7.00
No. 2 Indian Pond S. S. ₱ gro. $4.50
Leader Red End S. S. ₱ gro. $4.50
Quick Cut Emery ₱ gro. $10.00
Pure Corundum, ₱ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat, $8
Emery Scythe Rifles, 3 Coat, $10
Emery Scythe Rifles, 4 Coat, $12
Balance of 1904 list 33⅓% } 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers ₱ gro. $9.00

Stops— Bench—

Millers Falls 15&10%
Morrill's, ₱ doz., No. 1, $10.00 50%
Morrill's, No. 2, $12.50 50%

Door—

Chapin-Stephens Co. 60@60&10%

Plane—

Chapin-Stephens Co. 20%

Straps— Box—

Cary's Universal, case lots 25&20%

Hame—

Covert's Saddlery Works 60&10%

Stretchers, Carpet—

Cast Iron, Steel Points, doz. 60@60&10%
Socket doz. $1.80
Bullard, ₱ doz. $4.00
Excelsior Stretcher and Tack Hammer Combined, ₱ doz. $6.00 20%

Strops, Razor—

Star Diagonal Strop 25%

Stuffers, Sausage—

Enterprise Mfg. Co. 25@25&7½%
National Specialty Co., list Jan. 1, 1902 30&5%

Sweepers, Carpet—

National Sweeper Co.: ₱ doz.
Louis XV, Roller Bearing, Gold Plated $120.00
Hepplewhite, Roller Bearing, Silver Plated $72.00
Sheraton, Roller Bearing, N'kel. $60.00
Ye Mission, Roller Bearing, Oxidized Coppered $36.00
Transparent, Roller Bearing, Plate Glass top, Nickeled $36.00
National Queen, Roller Bearing, Fancy Veneers $27.00
Loyal, Roller Bearing, Veneers, Nickeled $25.00
Triple Medal, Roller Bearing, Nickeled $24.00
Marion, Roller Bearing, N'kel. $24.00
Marion Queen, Roller Bearing, Nickeled $24.00
Monarch, Roller Bearing, N'kel. $22.00
Monarch, Roller Bearing, Jap. $20.00
Perpetual, Regular B'r'gs, N'kel. $20.00
Perpetual, Regular B'r'gs, Jap. $18.00
Monarch Extra (17 in. case), Roller Bearing, Nickeled $36.00
Monarch Extra (17 in. case), Roller Bearing, Japanned $33.00
Auditorium (26 in. case), Roller Bearing, Nickeled $54.00
Mammoth (30 in. case), Roller Bearing, Nickeled $60.00

NOTE.—Rebates: 50c per dozen on three-dozen lots; $1 per dozen on five-dozen lots; $3 per dozen on ten-dozen lots; $2.50 per dozen on twenty-five-dozen lots.

Streator Metal Stamping Co.:
Model E, Sanitaire ₱ doz $25.00
Model A, Sterling ₱ doz. $25.00
Model B, Sterling, Nickeled ₱ doz. $23.00
Model B, Sterling, Japanned ₱ doz. $21.00
Model C, Sterling ₱ doz. $21.50
Model D, Sterling ₱ doz. $19.50

Tacks, Finishing Nails, &c.

New List, May 1, 1905.

American Carpet Tacks 90&40@—%
American Cut Tacks 90&40@—%
Swedes Cut Tacks 90&40@—%
Swedes Upholsterers' 90&50@—%
Gimp Tacks 90&50@—%
Lace Tacks 90&40@—%
Trimmers' Tacks 90&40@—%
Looking Glass Tacks 65@—%
Bill Posters' and Railroad Tacks 90&50@—%
Hungarian Nails 85@—%
Finishing Nails 70&10@—%
Trunk and Clout Nails 80@—%

NOTE.—The above prices are for Standard Weights. An extra 5% is given on Medium Weights, and an extra 10&5% is given on light weights.

Miscellaneous—

Double Pointed Tacks 90&5 *or 6 tens*

See also Nails, Wire.

Tanks, Oil—

	Each.
Emerald, R. M. Co.	30-gal. $3.40
Emerald, R. M. Co.	60-gal. $4.25
Queen City, R. M. Co.	30-gal. $3.65
Queen City, R. M. Co.	60-gal. $4.50

Tapes, Measuring—

American Asses' Skin .50@—%
Patent Leather 25@30&5%
Steel $3 1-3&5%
Chesterman's 25@25&5%
Eddy Asses' Skin 40&10@50%
Eddy Patent Leather 25@30&5%
Eddy Steel 40@40&10%
Keuffel & Esser Co.:
Favorite, Ass Skin 40&10@50%
Favorite, Duck and Leather 25&5@25&10%
Metallic and Steel, lower list, 35@35&5%; Pocket, 35@35&5%.
Lufkin's:
Asses' Skin 40&10@50%
Metallic 30@30&5%
Patent Bend, Leather 25&5@25&10%
Pocket 40@40&5%
Steel 33⅓@35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger per 100 lbs. $2.75@$3.00

Thermometers—

Tin Case 80&10@80&10&5%

Ties, Bale—Steel Wire—

Single Loop 80&2½%
Monitor, Cross Head, &c. 70%

Brick Ties—

Niagara Brick Ties 25&10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works 60&10%

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White 20@20&5%

Hay—

Myers' Hay Tools 50%
Stowell's Hay Carriers, 50%; Hay Forks, 50%; Fork Pulleys, 50%.

Miniature—

Smith & Hemenway Co.'s 35%

Saw—

Atkins' Cross Cut Saw Tools 40%
Simonds' Improved 33⅓%
Simonds' Crescent 25%

Ship—

L. & I. J. White 25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz. $1.15@$1.25; gro. $11.50@12.00
Harper, Champion or Paragon, doz. $1.25@1.40; gro. $13.00@13.50

Game—

Imitation Oneida 75@75&5%
Newhouse 45@45&5%
Hawley & Norton 65%
Victor 70&10%
Oneida Community Jump 50%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes 8½@9¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, each $1.21; ₱ doz. $13.25
No. 3, Rat, ₱ doz. $6.50; case of 50 $5.75 doz.
No. 3½, Rat, ₱ doz. $5.25; case of 72 ₱ gro. $4.70 doz.
No. 4, Mouse, ₱ doz. $3.85; case of 150 $3.00 doz.
No. 5, Mouse, ₱ doz. $3.00; case of 150 $2.25 doz.

Trimmers, Spoke—

Wood's E 1 50%

Trowels—

Disston Brick and Pointing 30%
Disston Plastering 25%
Disston "Standard Brand" and Garden Trowels 35%
Kohler's Steel Garden Trowels, ₱ gro., 5 in., $4.80; 6 in., $6.00.
Never-Break Steel Garden Trowels ₱ gro. $6.00
Rose Brick and Plastering 25&5%
Woodrough & McParlin, Plastering 25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern 50&10%
Western Pattern 60&10%
Handy Trucks ₱ doz. $16.00
Grocery ₱ doz. $15.00
Daisy Stove Trucks, Improved Pattern ₱ doz. $18.50
McKinney Trucks each $10.00
Model Stove Trucks ₱ doz. $18.50

Tubs, Wash—*No. 1 2 3*

Galvanized, per doz. $4.25 4.75 5.25
Galvanized Wash Tubs (R. M. Co.):

No.	1	2	3	10	20	30
Per doz., net	$5.70	6.30	7.20	6.60	7.20	8.10

Twine, Miscellaneous—

Flax Twine: BC. B.
No. 9, ¼ and ⅓-lb. Balls .22@24¢
No. 12, ¼ and ⅓-lb. Balls .18@20¢
No. 18, ¼ and ⅓-lb. Balls .16@18¢
No. 24, ¼ and ⅓-lb. Balls .16@18¢
No. 36, ¼ and ⅓-lb. Balls .15@17¢
Chalk Line, Cotton ½-lb. Balls 25@30¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz. 10@18¢
Cotton Wrapping, 5 Balls to lb., acording to quality 11½@20¢
American 2-Ply Hemp, ¼ and ½-lb. Balls 13@14¢
American 3-Ply Hemp, 1-lb. Balls 13@14¢
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine) 9¢
India 3-Ply Hemp, 1-lb. Balls .9¢
India 3-Ply Hemp, 1½-lb. Balls 7½@8½¢
2, 3, 4 and 5-Ply Jute, ½-lb. Balls 9½@10½¢
Mason Line, Linen, ½-lb. Bls. 16¢
No. 26½ Mattress, ¼ and ½-lb. Balls .37¢
Wool, 3 to 6 ply B 7¢; A 7½¢

Vises—

Solid Box 60%

Parallel—

Athol Machine Co.:
Simpson's Adjustable 40%
Standard 40%
Amateur 25%
Columbian Hdw. Co. 40%
Emmert Universal:
Pattern Makers' No. 1, $15.00; No. 2, $12.50.
Machinist and Tool Makers' No. 4A, $12.50; No. 5A, $7.00; No. 6A, $10.00; No. 10A, $22.50.
Presto Quick Acting 25@25&5%
Tiger Machinists' 40%
Fisher & Norris Double Screw 15&10%
Hollands':
Machinists' 40@40&5%
Keystone 65&5&70%
Lewis Tool Co.:
Adjustable Jaw 30%
Monarch, 50%; Solid Jaw 50%
Massey Vise Co.:
Clincher 40%
Perfect, 20%; Lightning Grip 20%
Merrill's 20%
Millers Falls 60&10%
Parker's:
Victor, 20@25%; Regulars 20@25%
Vulcan's 40@45%
Combination Pipe 55@60%
Prentiss 20@25%
Snediker's X. L. 33⅓%
Stephens' 33⅓%
Williamson Mfg Co. Double Swivel 40&5%

Saw Filers—

Disston's D 3 Clamp and Guide, ₱ doz. $30 25%
Perfection Saw Clamps, ₱ doz. $4.50
Reading 60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3 45&50%

Wood Workers—

Massey Vise Co.:
Lightning Grip, 15%; Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Bignall & Keeler Combination Pipe Vise 60&10%
Holland's Combination Pipe 60@60&5%
Massey's Quick Action Pipe 40%
Parker's Combination Pipe:
87 Series, 60%; 187 Series, 60&5%; No. 870, 40%.
Williamson Mfg. Co. Double Swivel Combination Pipe 40&5%

Wads—*Price per M.* Dis. 15%

B. E., 11 up 60¢
B. E., 9 and 10 70¢
B. E., 8 80¢
B. E., 7 80¢
P. E., 11 up $1.00
P. E., 9 and 10 1.25
P. E., 8 1.50
P. E., 7 1.50
Ely's B. E., 11 and larger $1.70@1.75
Ely's P. E., 12 to 20 $3.00@3.25

Ware, Hollow—

Cast Iron, Hollow—

Stove Holloware:
Enameled 55%
Ground 60%
Plain or Unground 65%
Country Hollow Ware, per 100 lbs. $2.75
White Enameled Ware:
Maslin Kettles 70%
Covered Wares
Tinned and Turned 40%
Enameled 50%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware 60%
Iron Clad Ware 70&10%
Lava, Enameled 40&10%
Never Break Enameled 50%

Tea Kettles—

Galvanized Tea-Kettles:

Inch	6	7	8	9
Each	.45¢	50¢	55¢	65¢

Steel Hollow Ware—

Avery Spiders and Griddles 65@65&5%
Avery Kettles 60%
Porcelained 50&5@50&10%
Never Break Spiders and Griddles 65&5%
Never Break Kettles 60%
Solid Steel Spiders and Griddles 65&5%
Solid Steel Kettles 60%

Warmers, Foot—

Pike Mfg. Co., Soapstone 40@40&10%

Washboards—

Solid Zinc: ₱ doz.
Crescent, family size, bent frame $3.25
Red Star, family size, stationary protector $3.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector $2.90
Cable Cross, family size, stationary protector $3.15
Single Zinc Surface:
Naiad, family size, open back, perforated $2.65
Saginaw Globe, protector, family size, ventilated back $2.50
Brass Surface:
Brass King, Single Surface, open back $3.25
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.25
Glass Surface:
Glass King, Single Surface, open back $3.25
Enamel Surface:
Enamel King, Single Surface, ventilated back $3.25

Washers—Leather, Axle—

Solid 80&10@80&10&10%
Patent 90@90&5%
Coil: ⅛ 10¢ 1 11¢ 1¼ 12¢ *Inch.* 1¾ 13¢ *per box*

Iron or Steel—

Size bolt 5-16 ⅜ ½ ⅝ ¾
Washers .$5.60 4.70 3.40 3.20 3.00
The above prices are based on 5.80¢ off list.

In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Cast Washers—

Over ½ inch, barrel lots per lb. 1¾@2¢

Weather Strip—

Flexible Felt—

Lined, per 100 ft., $2; $3; $4 40&10%
Moore's Unlined, per 100 ft., $2; $3; $4 50&10%

Wedges—

Oil Finish lb. 2.70@2.80¢

Weights—Hitching—

Covert Mfg. Co. 40%
Covert's Saddlery Works 60&10%

Sash—

Per ton, f.o.b. factory:
Eastern District $27.50@$28.00
Southern Territory $20.00@$23.00
Western and Central Districts $23.00@$25.00

Wheels, Well—

8-in., $1.55; 10-in., $2.00; 12-in., $2.50; 14-in., $4.00.

Wire and Wire Goods—

Bright and Annealed:
6 to 9 80%
10 to 18 80&2½%
19 to 26 80&7½%
27 to 36 80&2½%
Galvanized:
6 to 9 75&5%
10 to 14 75&7½%
15 to 16 72½&10&2½%
19 to 26 75%
27 to 36 72½%
Coppered:
6 to 9 75&5%
10 to 14 75&7½%
15 to 18 72½&10&2½%
19 to 26 75&10&5%
27 to 36 75%
Tinned:
6 to 14 75&10&2½%
15 to 18 75&7½%
Annealed, Steel and Tinned, on Spools 70&10&10@70&10&10&10%
Brass and Copper on Spools 60&5@60&10&5%
Brass, list Feb. 26, '96 15%
Copper, list Feb. 26, '96 25%
Cast Steel Wire 50%
Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

List June 14 '03 90&20@90&25%
Brass Cup Hooks and Brass Screw Hooks 85@—%

Wire Cloth and Netting—

Galvanized Wire Netting 80&5@80&10%
Painted Screen Cloth, 100 ft. $1.00@1.10
Standard Galv. Hardware Grade:
Nos. 2, 2½ & 3 Mesh, sq. ft. 3¢
Nos. 4 and 5 Mesh, sq. ft. 3¼¢
No. 6 Mesh, sq. ft. 3½¢
No. 8 Mesh, sq. ft. 4¢

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural 75&10&5@80%
Alligator or Crocodile 70&10@75%
Baxter Pattern S Wrenches 70&5@70&10%
Drop Forged S 45@45&5%
Acme 60&10%
Alligator Pattern, 70%; Bull Dog 70%
Bemis & Call's:
Adjustable S, 40%; Adjustable S Pipe, 40%; Briggs Pattern, 40%; Combination Bright, 40%.
Bemis Pipe 60%
Combination Black 40&5%
Merrick Pattern 50%
Boardman's 40%
Coes' Genuine Knife Hdl. 40&10&5&5%
Coes' Genuine Steel Hdl. 40&10&5&5%
Coes' Genuine Key Model 40&10&5&5%
Coes', Genuine Hammer Handle 40&10&5&5%
Coes' "Mechanics'" 40&10&10&5&5%
Donohue's Engineer 40&10%
Eagle 50&10%
Elgin Wrenches, ₱ doz. $6.25
Elgin Rethreading Attachment, one die, ₱ doz. $6.25
Elgin Extra Dies, ₱ doz. $3.00
Elgin Extra Jaws, ₱ doz. $1.75
Elgin Monkey Wrench Pipe Jaws, ₱ doz. $2.10
Gem Pocket 20%
Hercules 70%
W. & B. Machinist:
Case lots 50&5%
Less than case lots 50%
W. & B. Railroad Special:
Case lots 50%
Less than case lots 40&10&5%
Solid Handles, P. S. & W. 50&5%
Stillson 65%
Vulcan Chain 50%

Fruit Jar—

Triumph Fruit Jar Wrench, 5 gross lots, ₱ gross, $7.50; ₱ doz. $0.80

Wringers—

Tuttle Roller Press Mop Pail Wringer, each, $8.00; ₱ doz. $18.00

Wrought Goods—

Staples, Hooks, &c., list March 17, '92 90@90&10%

Yokes, Neck—

Covert Saddlery Works, Trimmed 70%
Covert Saddlery Works, Neck Yoke Centers 70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers' & Freighters' list net

Zinc—

Sheet per 100 lbs., $8.00@8.25

For the Table of "Current Metal Prices" see the First Issue of Every Month.